BRITISH ENTOMOLOGY;

BEING

ILLUSTRATIONS AND DESCRIPTIONS

OF

THE GENERA OF INSECTS

FOUND IN

GREAT BRITAIN AND IRELAND:

CONTAINING

COLOURED FIGURES FROM NATURE

OF THE MOST RARE AND BEAUTIFUL SPECIES,

AND IN MANY INSTANCES

OF THE PLANTS UPON WHICH THEY ARE FOUND.

BY JOHN CURTIS, F.L.S.

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APHANIPTERA.

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OF SOUTHGATE,

TO WHOM THIS WORK HAS BEEN GREATLY INDEBTED

DURING ITS PROGRESS FOR THEIR NUMEROUS

AND VALUABLE CONTRIBUTIONS,

THE PRESENT VOLUME

IS DEDICATED,

IN TESTIMONY OF THE

ESTEEM AND FRIENDSHIP OF

THE AUTHOR.

London, December 1, 1836.

TO

ALEXANDER HENRY HALIDAY, Esq., M.A., &c.,

OF BELFAST,

WHOSE EXTENSIVE KNOWLEDGE

AND MUNIFICENT CONTRIBUTIONS

HAVE SO GREATLY ENRICHED THIS WORK,

AND WHOSE KINDNESS AND FRIENDSHIP IN ITS PROGRESS

HAVE BEEN AN UNINTERRUPTED SOURCE

OF GRATIFICATION

TO THE AUTHOR,

THIS VOLUME

IS DEDICATED AS A TOKEN OF SINCERE REGARD.

London, December 1, 1837.

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20 *line* 8 *for* articulated *read* pedicled.
line 21 *for* Posterior tibiæ *read* Anterior tibiæ.

114 Since the genus *Pulex* was published, we have been favoured with specimens of *P. Hirundinis* by Thomas Carpenter, Esq., who has pointed out the antennæ, which in this species are as long as the head, placed above the eyes, and are received when at rest into a deep groove, and when erected look like the ears of a rabbit; they are 4-jointed, the basal joint having a few long bristles.—The trophi are similar to those of *P. Canis*, but the maxillæ are more slender and acute.

150 *Neides elegans.* Upon examining several specimens taken by Mr. Dale upon *Ononis arvensis*, I find that the scutellum is elongated, and hangs over the abdomen like a tail.

417 *for* Ceratophyllus *read* Ceratopsyllus. This name, which was compounded to express the peculiar structure of the horned Fleas, was misprinted when the genus was established in this work, and it was not corrected, as the Author intended, in the Guide.

445 *Asiraca pulchella.* Mr. Dale has two females which are larger than the males.

453^{b} *line* 12 *dele* that. Mr. Dale has a male with elytra covering the whole body.

553 The Gerris is magnified; the length is 3¼ lines, the expanse 4½.

565 5th line from the bottom, *after* "names" *add* "in his Systema Naturæ," for in his Fauna Suecica, Linnæus has described several species.

569^{b} *line* 37 *for* it is *read* it has.

657 the insect is magnified: the expanse is 5 lines.

The length of two other insects is omitted in the plates, but their dimensions are given in the letter-press.



Pub. by J. Curtis Nov. 1. 1838

717.

COCCUS ACERIS.

The Sycamore Scale-insect.

ORDER Homoptera. FAM. Coccidæ.

Type of the Genus, Coccus Cacti *Linn.*

Coccus *Linn., Fab., Lat., Curt.*—Calymmata, Diaspis, Diaprosteci *Costa.*

Antennæ of the male inserted in front of the face, before the eyes, approximating, not so long as the body, stout, and linear, composed of 10 joints, 2 basal joints short, 3rd longer obovate, the following scarcely decreasing in length, the apical joint ob-pyriform and slightly pilose (4): very minute and remote in the female (♀ *a*), tapering, composed of 3 short joints, the apical one ovate, the apex furnished with a bristle.

Proboscis long and slender in the female, composed of 3 setæ, attached to an oval fleshy base placed between the anterior legs (2): wanting in the male.

Male. *Head trigonate* (1): eyes *small, lateral and reticulated:* ocelli? *smaller and placed below the eyes* (1*c*). Thorax *large suborbicular:* scutel *semiovate.* Abdomen *short, with a short horny process at the apex, and two setæ twice the length of the insect arising from the posterior angles.* Elytra *twice as long as the body, mealy, having only* 2 *nervures:* wings *none.* Legs *short and stout* (6): thighs *and* tibiæ *simple:* tarsi *consisting of an elongated joint, with a short claw and* 1 *or* 2 *bristles at the apex.* Female *oval, fleshy and apterous:* eyes? *remote, minute.* Thorax *composed of* 3 *or* 4 *fleshy rings closely uniting with the head and body, and forming more than half the animal.* Abdomen *short, composed of* 7 *or* 8 *segments, producing cottony scales at the apex.* Legs *very short and remote* (♀ *l*), *4-jointed, tapering, terminated by a single claw or bristle.* Larvæ *and* females *often living in a cottony substance on the leaves and branches of trees.* Pupæ *of the males inclosed in a cocoon.* L *the larva of* C. Cacti, *the smaller figure showing the natural size: the* antennæ *were* 7*-jointed:* eyes *black, minute and placed behind the antennæ.*

ACERIS *Fab.—Curt. Guide, Gen.* 1042. 2.

Male. Castaneous: antennæ pilose, 9-jointed, 2 basal joints short, 3rd twice, 4th thrice as long, 5th shorter than the 2nd; remainder ovate, decreasing in length (4*): eyes or ocelli ten, 5 on each side (1*). Thorax with a large membranous space before and another behind the scutel, which is transverse-ovate. Abdomen short and truncated, with a long stout spine at the apex and a fine white seta on each side, thrice as long as the animal: elytra long and broad, iridescent, yellowish with the subcostal nervure broad and ochreous, castaneous at the apex where the colour spreads to the costa: legs and telum ochreous, the former more or less brown. *Female* as large as that of *C. Cacti,* but of a duller red colour.

In the Author's and other Cabinets.

The sexes of Coccus are so dissimilar, that nothing but rearing them from the parent would convince any one of their identity. The male is small but winged, sometimes having ten eyes; it is deprived of a proboscis, but is capable of locomotion: the female is often ten times as large, immovable, formed like a scale or fleshy, and clothed with cotton, having a longish proboscis; and so great a variety is there in the structure of the species, that Sig. Costa has proposed 3 genera, and I doubt not many more will be necessary when the group is investigated. The œconomy of the valuable Cochineal insect being well known, I shall prefer giving the history of *C. Aceris*, with which Mr. Westwood has favoured me, together with males of the insect.

"My specimens of this species," he says, "have been obtained from a young plant of *Acer Pseudo-platanus*, growing in a very confined situation at Kensington. The males make their appearance in the winged state in the month of May, when the impregnation of the female takes place in the singular manner described by Reaumur (v. 4). The males on emerging from their singular cocoons escape backwards, the wings being extended flatly over the head. By the end of June the females have attained their full gravid size, and on lifting up their bodies, their whole interior is occupied by white flowery-like matter, in which the minute young are to be observed, of the size of a small dot. In this state they are hexapod and antenniferous, active, and furnished with 2 elongated anal setæ. By the end of July the young quit the body of their parent, and ascend to the extremity of the young branches; there they affix themselves, gradually increasing in size, and losing the anal setæ as well as their former activity. In this state they remain through the winter, without any diversity of appearance indicative of the sexes, and it is not until the following April that this is first perceived by the further increased growth of the females, and by the males assuming the pupa state. The female when full grown has the appearance of a large shining warty excrescence, without any trace of segments. They are much infested by Chalcidideous parasites, several species of which belong to a distinct genus, intermediate between *Encyrtus* and *Eulophus*, which I have described under the name of *Coccophagus*."

As the Cocci generally kill the plants on which they live, those that infest the vine, pine-apple, &c. do great mischief in hot-houses, where congenial heat, and the absence probably of those parasites which in the native countries of those plants keep them in check, contribute to their rapid propagation, if proper care be not taken to destroy them when they first make their appearance.

Turritis glabra, Smooth Tower-Mustard, was communicated by W. W. Saunders, Esq. from Wimbledon.



Pub: by J. Curtis Dec: 1 1835

577.

APHIS TILIÆ.

The Lime-tree Aphis.

ORDER Homoptera. FAM. Aphidæ.

Type of the Genus, Aphis Tiliæ *Linn.*

APHIS *Linn., Fab., Lat., Curt.*

Antennæ considerably longer than the body, often as long as the wings, setaceous and naked, inserted close to the inner margin of the eyes in front of the face, composed of 7 joints, two basal stout and oblong, 1st the stoutest, remainder slender, 3rd very long, 4th only half as long, 5th and 6th about the same length, 7th considerably shorter and more slender, with a few hairs at the apex (4).

Trophi arising at the lower part of the face between the anterior coxæ (F).

Labrum short broad and subconic (3).

Mandibles and *Maxillæ* slender.

Labium bent under the breast, and united to the antepectus, not longer than the head and rather stout in the males (2 the profile), composed of 4? short oblong joints, 2nd the stoutest and curved, 4th the smallest ovate-conic and pilose: longer and slenderer in the female (F).

Head *immovable, transverse-convex* (1 *front view*): face *transverse-ovate and very much deflexed beneath* (1, *u, underside of head*): eyes *globose, remote, lateral, not very prominent:* ocelli *remote,* 2 *placed near to the inner margin of the eyes, the* 3*rd close to the anterior margin of the forehead.* Thorax *oblong, the* collar *very long in the male:* scutellum *semiorbicular.* Abdomen *elongate-conic with* 2 *tubercles or tubes on the* 5*th? segment in the males, always elongated in the females with a horny process beneath the apex* (F). Wings *membranous, deflexed in repose;* superior *twice as long as the body, ample, the marginal furcate cells short;* inferior *much smaller, with* 2 *slightly oblique nervures, remote at the costa:* Females *generally apterous* (F). Legs *slender and long, especially the hinder pair:* thighs *elongated in the females as well as the* tibiæ, *especially in the hinder pair, which are not curved:* tarsi *short, biarticulate, basal joint minute,* 2*nd long and clavate:* claws *curved and acute* (6, *fore leg*).

TILIÆ *Linn.—Curt. Guide, Gen.* 1047. 29.

Yellow-ochreous; antennæ not so long as the wings, black, 3rd joint sometimes with a yellow ring at the middle, the base of the 4th, 5th and 6th annulated with the same colour; orbits of eyes, sides of collar and 2 spots on the metathorax, fuscous: abdomen with 2 very short tubercles, a double row of black spots down the back and smaller ones on each side: superior wings with the costa, a broad margin to the stigma, which is yellow, and all the nervures at the apex, fuscous, the latter forming 6 elongate-trigonate spots on the margin of the superior, and 2 on the inferior wings: Legs rather short, hinder thighs black, except at the base, their tibiæ black only at the base, all of them fuscous at the apex, as well as the tarsi.

In the Cabinets of Mr. Dale, Mr. Walker, and the Author.

I CONSIDER this group more nearly allied to Psylla (fol. 565.) in the formation of the head and rostrum than the Cinaræ are; and whatever may be the affinities of Thrips, it certainly must not separate these two groups, which it does in my Guide, where I adopted the views and arrangement of Latreille.

I must observe that I have described the winged specimens as males, and the apterous as females; but as I have detected the horny process beneath the apex in both, and in the same species, I am not confident that my fig. F is a female, neither have I been able to identify the species.

The following insects belong, I believe, to this genus; they inhabit the plants after which they are named, and I have referred, as far as I am able, to figures and descriptions of them.

1. Pruni *Fab.—DeGeer, vol. 3. pl. 2. f.* 1—13.
2. Pomi *DeG. pl. 3. f.* 18—23.—Mali *Fab.*
3. Juniperi *Fab.—DeG. pl. 4. f.* 7—9.
4. Craccæ *Linn.—DeG. pl. 2. f.* 14—19.—Viciæ *Fab.*
5. Millefolii *Fab.—DeG. pl. 4. f.* 1—6.
6. Rosæ *Linn.—DeG. pl. 3. f.* 1—13.—*Reau. v. 3. t.* 21. *f.* 1—4.—*Harris Expo. pl.* 18. *f.* 1—3.
7. Salicis *Linn. Trans.* 6. *p.* 94. *tab. 5. f.* 1. and 2.—*Reau. pl.* 22. *f.* 1 and 2.—*DeG. t.* 4. *f.* 10—13.
8. Ribis *Linn.—Reau. pl.* 24. *f.* 4.
9. Cardui *Linn. Faun. Suec. n.* 988.
10. Absinthii *L. F. S.* 990.
11. Euonymi *Fab. Ent. Syst.* 4. 214. 21.
12. Avenæ *Fab.* 214. 22.
13. granaria *Kirb. Linn. Trans.* 4. 238.
14. Viburni *Scop.—Fab. E. S.* 4. 216. 28.
15. Tanaceti *Linn. F. S. n.* 989.
16. Papaveris *Fab. E. S.* 4. 218. 38.
17. Sonchi *Linn.—Reau. t.* 22. *f.* 3—5.
18. Brassicæ *Linn.—Harris Ex. pl.* 18. *f.* 4—6.
19. Althæa *Harris, pl.* 18. *f.* 7—9.
29. Tiliæ *Linn.—Curt. Brit. Ent. pl.* 577.

Found on long grass in a field at Blandford, the beginning of June, by Mr. Dale and Mr. F. Walker, at Southgate.

The following is apparently a new species of *Cinara*, which is appended here for want of space in the preceding folio.

Symphiti *Curt.*—Piceous pubescent; abdomen with 2 short tubercles; superior wings with the short furcate nervure wanting, a pale stripe on the costa at the apex, with a lunate transparent spot next the stigma, which is long and brown, and another brown spot at the centre of the interior margin; antennæ and legs ochreous and woolly, the 2 basal joints and apex of the former, and the tips of the other joints, fuscous; thighs, especially the posterior, annulated with brown, tarsi and tips of tibiæ piceous: expanse 5 lines.

24th June, Isle of Portland, J. C.; and on Comfrey at Glanville's Wootton, the middle of June, Mr. Dale.

The Plant is *Acer Pseudo-platanus* (Sycamore or Great Maple).






4
2
3
6
9
F

576.

CINARA ROBORIS.

The clouded-winged Oak-louse.

ORDER Homoptera. FAM. Aphidæ.

Type of the Genus, Aphis Pini *Linn.?*

CINARA *Curt.*—Aphis *Linn., Fab., Lat.*

Antennæ considerably shorter than the body, inserted in the face near to the eyes, filiform, pilose and 7-jointed, two basal joints robust and oblong, the remainder slender, 3rd the longest, 4th and 5th shorter, 6th considerably shorter, 7th abbreviated, apparently triarticulate and conical at the apex (4).

Trophi arising from the anterior margin on the underside of the head (F).

Labrum long, narrow and lanceolate (3).

Mandibles and *Maxillæ* very long and exceedingly slender.

Labium inflected, as long or longer than the antennæ, especially in the male (2); pilose, membranous at the base, 5-jointed, basal joint the broadest, elongated, 2nd twice as long, 3rd a little broader and nearly as long as the 1st, 4th shorter, slenderer and attenuated, 5th the shortest and very slender.

Head *obtuse, broad and transverse:* face *trigonate* (1). Ocelli 3, *forming a very large triangle, one being at the base of the clypeus, the others close to the internal margin of the* Eyes, *which are globose, lateral and very prominent.* Thorax *globose;* collar *very short in the male:* scutellum *semiorbicular.* Abdomen *short, thick and rounded at the apex, with* 2 *tubercles on the back of the* 5*th? segment.* Males *generally with* wings, *all membranous, deflexed when at rest, superior ample, twice as long as the body, the marginal furcate cells elongated* (9); *inferior wings much smaller, with* 2 *oblique nervures approximating at the costa* (*). Females *for the most part apterous* (F). Legs *slender, hinder pair the longest:* thighs *rather short:* tibiæ *longer, hinder pair very long and curved:* tarsi *short, biarticulate,* 2*nd joint twice as long as the* 1*st and clavate:* claws *bent, acute* (6, *a fore leg*). Obs. *The outline figure of the female, being drawn from a dried specimen, does not give the character of that sex so well as could be wished.*

ROBORIS *Linn.—Curt. Guide, Gen.* 1047ª. 30.

Shining black, wings iridescent, superior with the apical portion and a fascia across the middle dark brown; stigma ferruginous, margined by a lunate transparent spot divided in the centre by a brown line; antennæ and legs ferruginous, 2 basal and 2 apical joints of the former fuscous, apex of the tibiæ, of the posterior thighs, the hinder tibiæ, excepting the base, and all the tarsi piceous. *Female* similar, but apterous.

THERE is no insect that does more mischief in this country, and causes a greater loss of property, than the Aphides, or plant-lice, for not only is the beauty of our gardens defaced and the loveliest flowers destroyed, but the most promising crops are rendered unproductive through the agency of one of these little animals, the Hop-fly.

The Aphides are very remarkable in their œconomy, and their increase is almost marvellous: the female is sometimes

oviparous, but more generally viviparous, and frequently produces young without associating with the male, and in this way, according to Bonnet, they have multiplied for nine generations in the space of three months: it is also said by one observer in the Ent. Mag., that female Hop-flies sometimes produce *winged* individuals. By this rapid succession we may frequently see at the same period, on a single leaf, larvæ of every size, the pupæ, winged males and apterous females, their exuviæ, and the shells of those that are pierced by parasites, which together render the sweetest plants offensive both to the touch and sight.

The greatest mischief, however, arises from their exhausting the plant. I once observed some Aphides upon a Sonchus; they were all sucking it: the females were of various sizes, and the winged males had their proboscis thrust its whole length into the stalk and calyx, and the punctures they had made were indicated by the sap exuding and becoming dark as it hardened over the wounds after the insects had left the spot. Fortunately for man, no insect has more enemies than the Aphides: the most conspicuous amongst them are the larvæ of the *Chrysopa* (pl. 520), the Lady-bird (*Coccinella*, pl. 438), and of a beautiful fly (*Scæva Pyrastri*, fol. 509.), which revel amongst their helpless victims until they are transformed into pupæ; but besides these, there are minute parasites which are not less useful in keeping the Aphides within bounds, amongst them are *Ceraphron Carpenteri* (fol. 249.), *Cyrtogaster vulgaris* (Guide, Gen. 624.), *Cynips erythrocephalus*, and the *Aphidii* (pl. 383). These Hymenoptera (the last of which have been investigated and described by Mr. Haliday in the Ent. Mag.,) generally deposit their eggs in the larvæ or pupæ of the Aphides, which then assume an opake and horny appearance; and when the imago escapes, a hole is visible on the side, sometimes with the operculum attached, and open like a door.

The Aphides have also the singular property of producing the saccharine matter called Honey-dew, that exudes in globules from the tubes attached to the bodies of many species, and it is this deposit which the Ants are so fond of.

From a careful investigation of these insects, I find they may be very easily, and, I may add, usefully formed into two genera, the CINARÆ, with antennæ shorter than the body: proboscis as long as the body, at least in the males, and projecting immediately from the clypeus; with the collar short in the males. Nos. 20 to 30 enumerated in the Guide, with the exception of No. 29, belong to this genus. Both sexes of the species figured I have found in Darent Wood and the New Forest, the beginning of June, on Oaks.

The others, which may be considered the typical Aphides, I shall illustrate in the following plate; they are characterized by antennæ longer than the body: proboscis much shorter, especially in the winged males, and arising between the anterior coxæ: the collar long in the males.

The Plant is *Trifolium arvense* (Hare's-foot Trefoil).











748.

THRIPS DISPAR.

Order Thysanoptera Hal. Homoptera Leach.

Fam. Terebrantia.

Type of the Genus, Thrips *physapus Linn.*

Thrips *Linn., DeGeer, Fab., Lat., Hal., Curt.*

Antennæ approximating, inserted before the eyes, often as long as the thorax, sparingly bristly, 9-jointed; 2 basal joints the stoutest, oblong, 3rd and 4th rather larger, obovate with a gland at the apex appearing like a small joint, 5th obovate, 6th elongate-ovate, truncated, the remainder tapering, 7th oblong, 8th minute, 9th twice as long, very slender, the apex pilose (4).

Labrum broad at the base, attenuated before (3).

Mandibles 2 long setæ, thickened at the base (5).

Maxillæ broad, attenuated to the apex, which is narrowed abruptly (m). *Palpi* placed near the middle on the outside, conspicuous, triarticulate, joints oblong, 3rd rounded and pilose (*p*).

Labium short and stout, the base dilated, elongate-conic (2), with a short *Palpus* on each side near the apex, which is rounded and pilose (*p*).

Males *smaller than the females.* Head *depressed* (1 *profile*), *subovate or oblong;* face *inclining obliquely beneath, terminated by the trophi, which unite and form a short beak, close to the anterior coxæ:* eyes *large, remote, coarsely granulated:* ocelli 3, *distinct, forming a large triangle on the crown.* Thorax *suborbicular or semiovate:* scutel *short sublunate.* Abdomen *long narrow and smooth, apex ovate or conical, acuminated in the females, composed of* 9 *segments:* ovipositor *incurved, compressed, received into the underside of the 8th and 9th segments.* Wings *narrow, horizontal, incumbent and parallel, but not meeting in repose; generally* 4, *sometimes as long as the body:* superior *sometimes coriaceous, with* 3 *longitudinal nervures:* inferior *shorter, membranous, both with long hairy cilia.* Legs *remote, anterior* (6) *very short and stout, hinder the longest:* thighs, *anterior incrassated but compressed:* tibiæ, *anterior with a protuberance inside, and a curved claw at the apex, the others simple:* tarsi *very short, biarticulate, basal joint oblong, 2nd short, vesiculose:* claws *none.*

Larvæ *and* Pupæ *similar to the Imago; the former softer, without wings; the latter less active, with rudiments only.*

Dispar *Hal. Ent. Mag.* 3. 449.—*Curt. Guide, Gen.* 1048. 24.

Male black, shining: antennæ 8-jointed? apex indistinctly articulated: head ovate, truncated behind: thorax suborbicular, sides foveolated: wings small ovate, whitish: antennæ and legs pale ochre, basal and 2 apical joints of former, thighs and 2nd tarsal joint brownish. *Female,* 3rd joint of antennæ yellowish, 4th darker: wings long narrow and dirty white, superior with a brown fascia across the middle, and an equal portion of the apex of the same colour: legs yellowish, thighs and apex of tarsi piceous, base of tibiæ brownish.

The genus Thrips of Linné has given rise to as great a variety of opinions regarding its affinities, as Stylops; but after all that has been adduced respecting its alliance to the Orthoptera, Neuroptera, &c., I have not the least hesitation in adopting the opinion of Mr. Haliday, who has established it as a distinct order. The setiform mandibles show that Thrips belongs to the Haustellatæ, and its rostriform trophi undoubtedly indicate a near relationship to the Homoptera, in which order Psylla (pl. 565) seems to make the nearest approach to it. The trophi are similarly situated at the extremity of the face, close to the anterior coxæ: it has a borer composed of four pieces, and the tarsi are biarticulate. One of the maxillary palpi was bent back in the specimen I dissected, which might be an accidental position, for I could not discover the other. *Fig. g.* represents a piece which projected from beneath the labrum, which seems to have its analogue in the Tettigonidæ (*pl. 633. g.*).

These insects live upon the juices of plants, and probably on the pollen, for every flower sometimes swarms with them. It is the Thrips which causes an intolerable irritation of the face, when it runs and leaps with its bladder-shaped feet over the skin, throwing up its head and twisting about its tail to open or close its wings. Minute as they are they do very great injury to various crops. *T. physapus* of Kirby, *L. cerealium*, Hal. is the insect which, by attacking the wheat stems above the knot occasions abortive ears. "In the year 1805," observes Mr. Haliday, "one third of the wheat crop in the richest plains of Piedmont is said to have been destroyed by this seemingly insignificant little insect." We also learn from Professor Passerini, that the olives of Italy are greatly injured by a species of Thrips, which fixes itself under the leaves. The rye-spikes also in Scotland, infested by some of these insects, are stated to become unprolific.

I must refer to Mr. Haliday's invaluable memoir for characters of the families, genera, and species, a list of which will be found in the Guide, and I can only avail myself of that portion of his synoptic table which comprises the genus Thrips as restricted by him.

A No ocelli Subg. III. Aptinothrips.
AA Three ocelli.
B Prothorax in front produced, narrowed..... I. Chirothrips.
BB Prothorax of equal breadth.
C Last segment armed with two dorsal spines in the ♀ II. Limothrips.
CC Last abdominal segment unarmed.
D Style of antennæ longer than the 6th joint V. Belothrips.
DD Style shorter than the 6th joint IV. Thrips.

T. dispar was found by Mr. Haliday "on *Festuca fluitans* and other grasses in autumn." *Knappia agrostidea*, Early Knappia, was communicated by S. H. Haslam, Esq., from Guernsey.


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492.

LIVIA JUNCORUM.

ORDER Homoptera. FAM. Psyllidæ.

Type of the Genus, Livia Juncorum *Lat.*

LIVIA *Lat., Curt.*—Psylla *Lat.*—Diraphia *Ill.*

Antennæ porrected, as long as the head and inserted on each side, on a shoulder before the eyes, 10-jointed, 2 basal joints robust, the others slender and filiform, 1st joint cup-shaped, 2nd very large, elongate-ovate, truncated at the apex, 3rd small cup-shaped, the remainder more or less quadrate or ovate, the apical joint slightly notched and furnished at the apex with 2 unequal short divaricating bristles (4).

Rostrum a small thick conical lobe (1*2).

Head *large and flat, deeply notched in front:* eyes *remote oval and situated on each side near to the base.* Ocelli 2 *placed behind the eyes* (1, *the head and base of antennæ in profile;* 1*, *underside of the same*). Thorax *not broader than the head;* prothorax *forming a transverse linear band;* scutellum *small.* Abdomen *short, conical and furnished with an* Ovipositor *in the female.* Wings *deflexed when at rest,* superior *coriaceous, broad and ovate with* 2 *marginal cells, a branched nervure near the middle, each branch furcate at the margin, and* 2 *oblique nervures below* (9); inferior *smaller, very transparent with a few very fine nervures* (9*). Legs *similar and small, with a spine at the base of each of the posterior coxæ?* thighs *compressed:* tibiæ *subclavate, the hinder pair with a ring of short spines at the apex:* tarsi *triarticulate,* 1*st joint scarcely to be detected except in the hinder feet,* 2*nd joint short nearly as long as the* 3*rd in the same pair:* Claws *minute* (6†, *hind leg with a portion of the postpectus attached to show the spine*).

Larvæ *very flat and elliptical, with antennæ and* 6 *feet.*

Pupæ *similar to the larvæ, with rudimentary elytra.*—Lat. Hist. Nat. des Four. pl. 12. f. 3. B.

JUNCORUM *Lat.—Curt. Guide, Gen.* 1049. 1.

Lurid ochre, finely rugose, 3 basal joints of antennæ red the remainder whitish, excepting the 2 apical joints which are black, head red excepting a stripe down the crown, central part beneath black, leaving the apex of the clypeus and the base of the Labrum ochreous: thorax red, the segments margined with greenish ochre: postscutellum black, sides scarlet: superior wings palest towards the costa; inferior colourless.

In the Author's and other Cabinets.

THIS singular little insect is nearest related to Psylla; but the form of the head, the prothorax, and antennæ, will show that it was necessary to separate it from that group.

Not having living specimens, I was unable to discover the mandibles and maxillæ, but Latreille says they (*les soies*) appeared to him very long; neither could I ascertain whether the curious spine shown at fig. 6†. was attached to the postpectus or the coxæ; but I am inclined to think to the latter. I discovered, however, that the tarsi consisted of 3 joints, and not of 2, as hitherto stated.

In our excursion last July to Bottisham Fen, Prof. Henslow pointed out to me the singular appearance of the Juncus, as represented in our plate, and informed me that it was occasioned by the *Livia Juncorum*; and on opening the tuft we found the larvæ and pupæ in some abundance. As Latreille was the first historian of our insect, and gave a very excellent memoir upon it, I shall give some of his remarks upon its œconomy. He informs us, that "the females deposit their eggs in the flowers of the *Juncus articulatus* (pl. 2.), or at least in their shoots. The sap of the plant repairing to these parts in greater abundance, it forms there a monstrosity, which has the appearance of a bundle of grass. The divisions of the calyx are elongated into a sort of barb or awn. The eggs are few in number, tolerably large, oval, yellowish, shining, marked with a red dot at one end, and attached to the leaves by a pedicel. The Larvæ, as well as the Pupæ, move slowly. They live constantly inclosed in the interior of these false galls, supporting themselves on the juice of the plant, and voiding a farinaceous matter very white, in the midst of which they seem to delight in living. The perfect insect also remains there very quietly, and, like the other Psyllidæ, it jumps more than it walks."

The coloured Plant is *Lathyrus palustris* (Marsh Vetchling).


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625.

LIVILLA ULICIS.

Order Homoptera. Fam. Psyllidæ.

Type of the Genus Livilla Ulicis *Curt.*

Livilla *Curt.*

Antennæ inserted on each side of the head, before the eyes, as long as the head and thorax, capillary, scabrous and 10-jointed, 2 basal joints stout, obovate-truncate, the remainder slender, 3rd very long, the following shorter, 9th and 10th the shortest, the apex furnished with 2 little unequal bristles (4).

Mandibles and *Maxillæ* setiform.

Labium small, attached to the hinder part of the face, and projecting between the anterior coxæ, biarticulate, 1st joint elongated, 2nd horny and conical, with a small tuft of hair on each side (2).

Head *large, with the front produced and deeply cleft, forming* 2 *large cylindric somewhat conical lobes:* eyes *remote, lateral, prominent and globose:* ocelli, *one placed on each side close to the eyes and a 3rd probably at the base of the cleft.* Thorax *suborbicular, with a broad narrow collar:* scutellum *small, semiorbicular.* Abdomen *short, broad, and subovate.* Elytra *deflexed in repose, large, coriaceous, convex and ovate, the nervures raised, one simple and* 2 *furcated:* wings *small, membranaceous, oval, with short costal cells, one simple and* 2 *furcate nervures.* Legs *short: hinder* coxæ *with a large spine:* thighs *very short, especially the anterior:* tibiæ *simply clavate, the hinder with a few minute spines at the apex:* tarsi *biarticulate, the joints nearly of equal length:* claws *minute* (6 †, *a hind leg, including the trochanter*).

Ulicis *Curt.—Guide, Gen.* 1049^{b}. 1.

Black, shining; lobes of the head hairy; antennæ ochreous at the base: elytra pitchy-brown, slightly rugose; wings pale fuscous, costal nervures pitchy, the others brown: legs pubescent, ochreous, hinder thighs brown, except at their tips; spines of tibiæ and claws blackish.

In the Cabinets of Mr. Dale and the Author.

Of this family we have already figured the other two genera, Livia (pl. 492) and Psylla (pl. 565), which Livilla connects, its coriaceous elytra and stoutish legs agreeing with the former, but making a nearer approach to the latter in the form of the head and proportions of the antennæ.

For specimens of this new and curious little insect I am indebted to Mr. Dale, by whom they were discovered upon Furze-bushes and grass the 28th June in Mr. Webb's plantation, Annis, West Camel, Somerset, and the following day in plenty on Higham Hill, near Breach Wood, Langport, in the same county. This insect has the power of jumping like the rest of the family, and I have observed that the Psyllæ expand their wings on such occasions.

The Plant is *Avena* (*Trisetum* Pers.) *pubescens*, Downy Oat.


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565.

PSYLLA FRAXINI. Fairmaire 177

Chermes of the Ash.

ORDER Homoptera. FAM. Psyllidæ.

Type of the Genus, Chermes Betulæ Alni *Linn.*

PSYLLA *Geof., Lat., Curt.*—Chermes *Linn., DeG., Fab., Gmel.*

Antennæ inserted before the eyes, sometimes as long as the body, filiform, 10-jointed, basal joint stout subquadrate, with a few bristles, 2nd small and oblong, remainder very slender, 3rd joint longer than the 4th, the following slightly increasing in length to the 9th joint, which is not longer than the 4th; 10th joint considerably shorter and terminated by 2 unequal bristles (4).

Labrum? elongate-ovate.

Mandibles and *Maxillæ* long slender setæ, curved at the base (1).

Labium conducted from the head under the antepectus and appearing between the coxæ of the anterior legs (T 2); short stout and triarticulate; basal joint elongated, 2nd much shorter and slenderer, 3rd suborbicular (2).

Head *short but broad, deeply notched before* (1, *the upper side*): *eyes lateral, small globose and prominent:* ocelli 3, *on the crown very remote.* Thorax *subglobose.* Abdomen *short, that of the male furnished towards the apex with a long erect hairy lobe,* 2 *others forming an arch at the apex, with a short oblique process between them* (A ♂): ovipositor *exserted, rather large and a little curved, composed of an oviduct inclosed by an upper and under valve, and* 2 *lateral ones united at the base* (♀). Wings *deflexed in repose,* superior *very ample, elongate ovate, with* 3 *furcate nervures;* inferior *smaller, with very indistinct nervures.* Legs *short, hinder pair a little longer and formed for leaping;* coxæ, *posterior with a strong spine beneath:* tibiæ *with minute spines at the apex, hinder pair the longest, with a hook outside at the base:* tarsi *short and biarticulate:* claws *hooked;* pulvilli *small* (8†, *hind leg, including the coxa*).

Pupæ *suborbicular and depressed.*

FRAXINI *Linn.*—*Curt. Guide, Gen.* 1050. *n.* 15.

Yellow, variegated with orange and black: tips of the clypeus, a triangular spot on the crown of the head, an interrupted circle on the thorax and the scutellum (excepting 2 yellow spots), black: abdomen banded with the same colour: superior wings with the nervures ochreous except at the apex, which is margined with brown, forming 3 or 4 irregular spots, basal angle brown with a short black line at its insertion: inferior wings with a brown stripe on the anal angle: centre of the thighs and tips of tarsi and antennæ black.

In the Author's and other Cabinets.

PSYLLA is a very numerous genus, which has been but little attended to. Linnæus only gives their names, which, like the Aphides, are for the most part derived from the plants that they inhabit. Many species in their larvæ and pupæ states are clothed with a white fleecy and cottony substance, and their excrement forms threads or masses of a glutinous and

sweet nature. The perfect insects jump when disturbed, in which the authors of the Int. to Ent. think they are assisted by the short spines attached to the hinder coxæ. One of the most remarkable appearances in this group is the singular situation of the rostrum or promuscis as it is called, which seems to spring from the breast, in consequence of the face being oblique, and the head so closely united to the antepectus as to render their separation difficult.

Latreille says that some species in piercing vegetables in order to suck the sap, cause in parts, especially on the leaves and buds, monstrosities like galls in appearance. Both Reaumur and DeGeer have illustrated this group, and the list in my Guide will be found in Gmelin's Syst. Nat.

5. P. Pyri *Linn.—DeG. v.* 3. *pl.* 9. *f.* 1—16.

The following accurate observations in a letter I received from T. A. Knight, Esq., of Downton, seem to apply to this species. "The insect first appears in April and May, solitarily on the lower surfaces of the leaves in the Pear, inclosed in a globule of honey, and subsequently retires to the bases of the leaves and deposits much honey upon the buds. The gardener is first made acquainted with its presence by the number of Humble-bees which are attracted by its honey, but in a short time the diminished growth of the fruit and the sickly appearance of the foliage point out to him the injurious operation of his minute enemy."

15. Fraxini *Linn.—Curt. Brit. Ent. pl.* 565 ♂.

Beginning of July, plantations near Dover and Killarney; end of August on Ash-trees in Skye.

5ª. Visci *Curt.*—Breadth $3\frac{2}{5}$ lines: pale green, becoming ochreous after death: antennæ as long as the body, black at the apex, each joint, excepting the two basal ones, tipped with the same colour: superior wings slightly tinged with brown, with a darker undefined spot on the inferior margin.

This I bred the middle of May from pupæ found on the Misseltoe at Rougham by Mr. Ralph Bennet.

22ª. Ulicis *Curt.*—Breadth 3 lines: green, sometimes spotted with red and black, forming dots and lines on the head and thorax: superior wings with a brown line along the centre and dots on the posterior margin, alternating with the nervures. The male is generally more rufous.

Abundant the middle of August on Furze-bushes in Brodick-bay, Isle of Arran.

25. Ericæ *Curt.*—Breadth 1 line: very short and broad; green or tawny; antennæ shorter than the thorax: ocelli ruby-colour: superior wings greenish or tawny, nervures not darker.

This diminutive species is found on heath, generally in plantations. I have taken it in the Isle of Bute and near Killarney in July, and Mr. F. Walker has met with it.

The Plant is *Fraxinus excelsior* (Common Ash).


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IASSUS RETICULATUS. Fairmaire 189

ORDER Homoptera. FAM. Tettigonidæ.

Type of the Genus, Cicada Lanio *Linn.*

IASSUS *Fab., Curt.*—Bythoscopus *Germ.*—Macropsis *Lewis.*—Cicada *Linn., Fab.*

Antennæ inserted in a large cavity on each side the base of the clypeus, not longer than the rostrum, small, divaricating, 2 basal joints stout, the 1st subpyriform truncate, 2nd ovate, the remainder forming a setaceous naked seta, thickened and curved at the base, apparently composed of numerous articulations, with a few bristles on the back of the basal joints (4).
Labrum forming a lanceolate lobe (3).
Mandibles and *Maxillæ* very slender setæ.
Labium shorter than the face, rather thick, formed of three indistinct joints, basal joint short, 2nd the longest, 3rd short, rounded and pubescent (2).

Head *very broad and short, the base concave* (1 *front view*, 1* *the profile*); *face much broader than long; clypeus small and oblong:* cheeks *dilated:* eyes *lateral, semiovate:* ocelli 2 *placed on the forehead between the eyes, but remote from them and from each other.* Thorax *transverse-ovate, the base straight, the anterior margin very convex, the sides angulated:* scutel *large, trigonate-cuspidate.* Abdomen *moderately long, subconic, the apex cleft above in the males, compressed, with a long ovipositor beneath in the females:* (5, *the underside*). Elytra *deflexed in repose, longer than the body, subelliptic, reticulated at the disc and apex, round which there is a narrow margin:* wings *subtrigonate, elongated with* 2 *or* 3 *cells at the apex and* 1 *or* 2 *furcate nervures below them, all united to a transverse nervure running parallel to the margin* (9*). Legs, *anterior the shortest, posterior the longest:* thighs, *hinder the longest with a few spines at the apex:* tibiæ, 4 *anterior simple,* 1*st pair a little bristly internally* (6); *hinder pair long, serrated, and spined externally:* tarsi *short and triarticulate, basal joint the longest in the hinder pair:* claws *and* pulvilli *rather short and stout.*

RETICULATUS *Curt. Guide, Gen.* 1051. 12.

In the Author's Cabinet.

THE exceedingly broad and short heads and equally broad thorax distinguish the group enumerated in the Guide under the name of *Iassus*, which seems to be synonymous with *Bythoscopus* of Germar. Mr. Lewis has established two genera from them, *Macropsis* and *Idiocerus*, one of which I shall notice shortly in describing our British species.

* Fairmaire 161. Edwards 1058

A. Face broader than long: clypeus oblong: ovipositor recurved.

1. lanio *Linn.*—viridis *Don.* v. 2. pl. 54. f. 3. Green, head, thorax and scutel ferruginous: 3 to 3¼ lines long in repose.

July and August, grassy places, everywhere.

B. Macropsis *Lew.*—Face not broader than long; clypeus broad ovate, narrowed at the apex: ovipositor nearly straight.

2. ferrugineus *Curt.* ♀. Ferruginous, variegated with yellow beneath; 4 dots on the head and 2 on the scutel black, hinder part of thorax and a patch on the costa greenish, nervures brown, yellow at the base: 2½ lines.

3. flavicollis *Linn.*—frontalis *Curt.* ♀. Ferruginous, crown, thorax, scutel and base of elytra greenish-yellow, with the costa and 2 spots on the latter hyaline; these are sometimes absent: 2⅓ lines.

July and August, birch trees, Isle of Bute and Killarney; alders, Parley Common.

4. pulchellus *Curt.* ♀. Ferruginous, base of elytra yellow, a hyaline spot on the disc and a larger lunate one towards the apex: 2½ lines.

Beginning of July, birch trees near Killarney.

5. fenestratus *Curt.* Piceous, face yellow, with 2 oblique black spots, and 4 dots on the crown; thorax grey with a ferruginous spot behind the eyes, and one or two black dots; scutel subferruginous and green: elytra hyaline, the nervures, a spot on the disc, and another on the inner margin brown: legs ochreous striped with black: 2¼ lines.

Birch-trees, June, Coomb Wood, New Forest and Clifton; July, Scotland, all males; August, Bute and Arran, all females.

6. reticulatus *Curt. B. E.* pl. 636. ♂. Piceous, face yellow with 2 longitudinal black stripes and 4 dots on the crown, which is grey as well as the thorax; this has three black spots on the anterior margin and a black dot on each side: scutel black with 4 yellow spots, base of abdomen with 2 orange spots, the apex black, with 2 yellow rings: elytra hyaline; the nervures, a spot on the disc and another on the inferior margin brown: legs ochreous striped with black, tips of tarsi black; 2½ lines. Sometimes the face and legs are much blacker and the spots on the crown united.

I took a pair in Perthshire in July.

7. personatus *Curt.* Greenish-ochre, face ochreous, ocelli placed at the middle: head and thorax trigonate in front, the former a little raised; pectus and upper side of abdomen spotted with black: 2¼ lines.

8. virescens *Lew.*—*Fab.*? "Yellowish-green; superior wings semi-coriaceous, subhyaline, the nervures towards the apex whitish-green; inferior wings hyaline with white nervures; apex of the outer sheaths of the ovipositor orange; the ovipositor castaneous: 2½ lines." *Trans. Ent. Soc.* 1. 50.

Willows, Battersea, and Coombe, July and August.

For the beautiful Plant, *Polemonium cæruleum*, Jacob's Ladder, I am indebted to Mr. Walton, who gathered them at Arncliff in Yorkshire.


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IDIOCERUS MACULIPENNIS.

ORDER Homoptera. FAM. Tettigonidæ.

Type of the Genus, Idiocerus stigmaticalis, *Lew.*

IDIOCERUS *Lewis, Curt.*

Antennæ inserted on each side of the face towards the lower part of the eyes, shorter than the head, setaceous, triarticulate, 2 basal joints stout and subovate, 3rd long and setaceous, with 2 bristles at the base, terminated by an ovate compressed club in the male (4), with a bristle or spine at the apex: seta simple in the female (4 ♀).

Labrum slender sublanceolate (3).

Mandibles long bristles (*). *Maxillæ* half as long again (*m*), uniting in the rostrum.

Labium short triarticulate, basal joint concealed, the shortest and broadest, 2nd the longest, 3rd oblong, the apex ciliated.

Head *broad, crown short, sublunate, the forehead convex* (1)*; face trigonate, convex* (1 ♂)*:* eyes *very remote and prominent, large and hemispherical:* ocelli 2, *very minute, moderately remote and placed above the antennæ.* Thorax *transverse, ovate-lunate, narrower than the head:* scutel *trigonate.* Abdomen *short and subtrigonate, apex of the male furnished with a curved process inclosed between* 2 *others, with* 2 *long membranous lobes outside, ciliated at the apex*: female *with* 2 *broad lobes and a scimitar-shaped oviduct, the upper margin serrated* (5 ♀). Elytra *deflexed or semicylindric, longer than the body, curved-elliptic, reticulated, with oblong or elliptical cells, the costa sometimes thickened and subserrated, the posterior margin producing a broadish membrane, one lapping over the other in repose:* wings *ovate-trigonate, with about* 6 *longitudinal nervures, united to a transverse one running parallel to the hinder margin,* 3 *of them furcated.* Legs *short, hinder long:* thighs *simple:* tibiæ, *anterior bristly or hairy internally* (6)*; hinder longish, slightly curved, spiny outside, with a coronet of spines at the apex:* tarsi *short and triarticulate,* 2 *basal joints short and* 3rd *the longest in the anterior, basal the longest in the hinder:* claws *short stout and semilunate:* pulvilli *bilobed.* Obs. *the dissections are from a male of* I. effulgens.

MACULIPENNIS *Curt. Guide, Gen.* 1051[b], 3.

MR. LEWIS established this group under the name it now bears in the Trans. of the Ent. Soc. The males are well characterized by their remarkable clubbed antennæ, and both sexes differ from all allied genera by the broad and long membranous margins of the elytra, which lap over each other when they are closed. One species is very remarkable for the incrassated and somewhat serrated costa, which is peculiar to the male; the small seta at the apex of the club of the antennæ also varies considerably, being short and elongate-trigonate in some, whilst in others it is a fine and longer bristle.

The following species are contained in my own Cabinet, and the 3 Fabrician names included in this genus in my Guide, must, I expect, be removed from thence.

1. stigmaticalis *Lewis in Trans. Ent. Soc. v.* 1. *p.* 28. *pl.* 7. *f.* 2.

Seta at apex of antennæ short and thick in the male, and the costa subserrated.

August, willows, Battersea and Norfolk: 14th October, female off Alders or Birch in a meadow at Parley, Hants.

2. maculicollis *Curt.* Length $2\frac{3}{4}$ lines.

Male ochreous, face with a fuscous cordate spot surrounded by black dots and trigonate spots: thorax lurid with black dots in front: scutel with 3 large black trigonate spots at the base, and one on the disc: elytra subhyaline, costa and nervures brown spotted with yellow: underside black, with bright yellow spots and lines: thighs and hinder tibiæ with black streaks.

3. maculipennis *Curt. Brit. Ent. pl.* 733 ♂.

Pale ochreous: seta quite as long as the club of the antennæ, which is black: a fuscous cordate spot on the face, with a black dot and an orange patch on each side of the crown: clypeus orange: thorax brown, indistinctly dotted with yellow, 2 oblique yellow streaks in front, with a few black dots; scutel with 2 or 3 black triangular spots on the base, and 2 incurved lines on the disc: abdomen black, base variegated with yellow, edges of segments finely edged with white: underside sulphureous with a black streak at the base: elytra yellowish-brown, costa ochreous spotted brown, nervures dark brown and tuberculated, especially at the base and apex, disc and inner margin brown, with 2 subdiaphanous spots and a larger one beyond them, on which the nervures are smooth and of the same tint; posterior membrane pale brown: inferior wings iridescent, nervures piceous: hinder thighs and all the tibiæ with a streak of black outside.

I took a male off Alders, I believe, at the base of Goatfeld in the Isle of Arran the 14th August.

4. sulphureus *Curt.* $2\frac{1}{2}$ lines long.

Greenish yellow: eyes and claws brown: club of antennæ and an irregular line down the back black, apical seta very short.

A male in July at Battersea, a female in a Cove at the Isle of Skye, 23rd August.

5. effulgens *Curt.* $2\frac{1}{2}$ lines long.

Yellowish or ochreous white, spotted with ferruginous or fuscous, elytra when closed reflecting splendid coppery tints with a whitish spot on the back, and a band of the same more or less defined beyond the middle.

September, off Alders on the banks of the Avon, near Salisbury.

6. unifasciatus *Curt.* Length $2\frac{1}{4}$ lines.

Grayish-white: thorax with 2 brown rays in front, and a patch on each side; scutel with 3 black spots at the base: elytra pearly-white, with a bright brown fascia across the middle, the base and apex fuscous.

I think I took this beautiful species in Norfolk.

7. æneus *Curt.* Length $2\frac{1}{4}$ lines.

Yellowish with small brown and black spots, excepting a space down the thorax: elytra of a bright brassy tint, back pale brown, leaving a pearly spot on the centre, nervures piceous with white spaces: pectus black.

August, Parley Heath.

Setaria viridis, Green Panick Grass, from Wandsworth, was communicated by W. W. Saunders, Esq.


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640.

EUPTERYX ORNATIPENNIS.

ORDER Homoptera. FAM. Tettigonidæ.

Type of the Genus, Cicada picta *Fab.*

EUPTERYX *Curt.*—Typhlocyba *Germ.*—Cicada *Fab.*

Antennæ inserted in cavities under the forehead, near the eyes, almost as long as the head and thorax, very slender, triarticulate, 2 basal joints stout, 1st cup-shaped, 2nd oval, 3rd a very long seta thickened at the base (4).

Labrum elongate-ovate, truncated at the base, with a narrow lanceolate lobe at the apex (3).

Mandibles and *Maxillæ* like bristles.

Labium short, stout, triarticulate, basal joint rather the longest, 2nd subquadrate, 3rd longer, pubescent and ovate at the apex (2.)

Head *scarcely so broad as the thorax, crown lunate, face very long somewhat ovate* (1, 1* *the profile*) *:* eyes *small, prominent and forming the posterior angles of the head :* ocelli *none.* Thorax *somewhat lunate, the sides rounded :* scutel *trigonate-cuspidate.* Abdomen *slender elongate-trigonate :* ovipositor *long and stout, the sheaths ciliated with hairs.* Elytra *twice as long as the body, narrow, elliptical, with a few longitudinal nervures,* 4 *cells at the apex* (9) *:* wings *nearly as long as the elytra and broader, with* 3 *apical cells, formed by nervures which unite with the external one* (*). Legs *very slender, anterior short, hinder very long :* thighs *short and slender :* tibiæ, *anterior armed with spines on the inside only and not to the apex* (6); *hinder long, with a double series of spiny bristles on the outside :* tarsi *moderately long and triarticulate, basal joint short, 2nd the longest in the anterior, first the longest in the posterior :* claws *and* pulvilli *small* (6, *a fore leg*).

ORNATIPENNIS *Curt. Guide, Gen.* 1053. 11.

Very pale yellow; base of head and thorax brown, the latter with 3 large yellow spots; scutel brown, with a yellow spot at each angle: abdomen banded and spotted with black, the apex pale brown: elytra reddish down the middle, brown at the base, 2 large hyaline spots on the costa, separated by a dark brown one; the transverse nervure dark and a dot near the apex black: wings iridescent. *Obs.* There is a yellow variety with the apex of the elytra only brown, and no markings, except 2 dark transverse nervures on the costa, and the apical dot.

In the Author's Cabinet.

I DEFINED the group before us and named it *Eupteryx* in the 1st Vol. of the Ent. Mag., and about the same time I understand Germar gave it another name. Having paid considerable attention to this order I am able to give the following species as British.

* *Face elongated : ocelli none or very minute.*

1. notata *Curt.* 1 line long. Yellow, thorax black with 4 minute dots; scutel and elytra brown, the latter with 2 large semiovate spots united on the costa, a large yellow one on the back, and 4 small hyaline ones on the membrane.

I took a pair in Scotland in August: it seems to be allied to *C. vittata* Linn.

2. flammigera *Curt.* 1½ line. Pale yellow, with 2 bright red stripes on the head and thorax, and a long undulating one along the elytra.

Off Oaks at Heron Court, Hants, 14th October.

3. fasciata *Curt.* 2 lines. Delicate yellow, a stripe down the thorax and scutel chocolate colour: elytra with 2 scarlet stripes from the base, an interrupted brown band across the middle, the costa bright yellow.

4. ornatipennis *Curt. Brit. Ent. pl.* 640 ♀.

Aug., Isle of Arran, and off Oaks at Cartland Craigs in Sept.

5. hortensis *Curt.* Similar to *E. tarsalis*, but there are 3 large yellow costal spots and 9 others between the nervures, which are also distinctly yellow.

Middle of Oct., off a species of Balm in a garden at Niton.

6. tarsalis *Curt.* 1½ line. Pale yellow, face with 2 black stripes and 2 dots with 2 larger ones on the crown, thorax with a double black stripe and 2 dots: scutel with 2 black spots: elytra fuscous with 4 yellow spots and a large macula on the costa: hinder tibiæ black.

7. Melissæ *Curt.* 1¼ line. Yellowish-white: 5 black spots on the head and 2 long lines on the cheeks, 2 black dots on the thorax as well as several small ones on the sides and scutel: elytra delicate sea-green, with 6 pale brown spots between the nervures and several on the membrane.

August and October, upon Balm in a garden at Niton.

8. ocellata *Curt.* 2 lines. Ochreous, 2 black dots between the eyes and one on the anterior margin of the thorax: elytra greenish, except at the apex, with a fuscous fascia towards the extremity.

** *Face shorter : ocelli distinct.*

9. viridipes *Curt.* 2 lines. Golden-green, tips of elytra fuscous, sides of face, legs, and oviduct bright blue-green.

July, Dover, Isle of Arran, and Blarney: it is allied to *C. Ulmi* L.

10. 6-notata *Curt.* 1½ line. Greenish-fuscous, face ribbed with black, crown with 2 large spots, 2 stripes and 2 dots black: scutel with 2 black dots at the base, nervures often invisible: tarsi spotted.

October, Ramsgate and Bourne-mouth, Hants.

11. maculipennis *Curt.* 1⅓ line. Ochreous; head and thorax ribbed and spotted with black, as well as the legs: abdomen black above: elytra fuscous with 7 yellowish spots, 3 at the base 2 at the middle and 2 near the membrane which is hyaline.

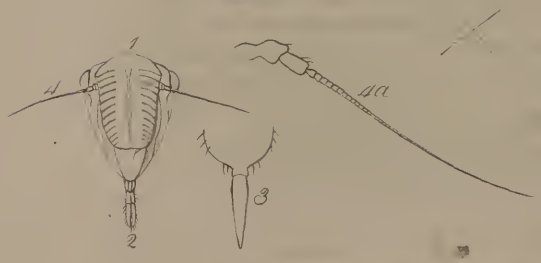
I took a single specimen in the Isle of Bute.

12. clypeata *Curt.* 1¾ line. Greyish-ochre; face slightly ribbed with brown, crown with 3 orange spots and others on the thorax, also a brown stripe and 2 spots: elytra with a scutellate spot on the back, margined with brown, a few spots across the back and a line of dots at the base of the membrane, both in an oblique direction.

The Plant is *Bromus diandrus* Smith, Upright Annual Brome-grass.






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572.

AMBLYCEPHALUS GERMARI.

Order Homoptera. Fam. Tettigonidæ.

Type of the Genus, Amblycephalus Germari *Curt.*

Amblycephalus *Curt.*—Cicada *Linn. Fab.*—Tettigonia *Lat.*

Antennæ inserted in a cavity between the eyes and near to the internal margin, as long as the head, but very slender; basal joint the largest, irregularly chalice-shaped, 2nd oblong, the remainder forming a very long and slender seta of numerous joints (4 *and* 4 *a*).

Labrum short, slender and lanceolate (3).

Mandibles and *Maxillæ* rather short, slender, acute and serrated at the apex.

Labium short and triarticulate, 2nd joint short, 3rd rounded (2).

Head *as broad as the thorax, semiovate-trigonate above;* face *convex, elongate, trigonate-ovate:* eyes *rather small, placed near the base:* ocelli 2, *situated near the base of the triangular ridge towards the centre of the crown.* Thorax *shorter than the head, transverse-ovate:* scutellum *trigonate and a little acuminated.* Abdomen *furnished with* 2 *elongated horny lobes under the apex in the male; rather long and conical in the female, with a long* ovipositor *beneath.* Wings *deflexed and somewhat convex, when at rest,* superior *scarcely so long as the body in the female, elliptic, interior margin nearly straight, with a few reticulations;* inferior wings *shorter and rounded, with numerous distinct nervures.* Thighs *with* 2 *spiny bristles at the apex, which is lobed externally, especially in the hinder pair:* tibiæ, *posterior very long, slender and slightly curved, the apex armed with teeth, the sides, especially externally, clothed with series of slender spines* (6 †): tarsi *short and triarticulate, hinder with the basal joint elongated:* claws *short and thick:* pulvilli *large* (6 * *middle leg*).

Germari *Curt. Ent. Mag.* 1. 192.—*Curt. Guide, Gen.* 1054. *n.* 3.

Pale ochreous: seta of antennæ and eyes black: head with 3 elevated lines on the crown, which is brown, forming an anchor, with 2 black spots at the base and a black line on each side of the clypeus; face with a double row of transverse blackish lines. Thorax with a mark down the back and a large space on each side piceous; scutellum of same colour; postscutel with 4 black spots. Abdomen with the base, a line of spots down the back and of narrow bands on the sides piceous. Superior wings with a spot at the base and apex, a bar at the middle of the interior angle brown, with the pale ochreous nervures crossing them: inferior wings fuscous, with the base and nervures white: claws and pulvilli piceous.—Obs. the male often has the crown of the head, the face, the thorax, excepting two lines down the back, the scutellum and the abdomen, excepting the base and apex, black: the superior wings also are darker, leaving a large ochreous spot on the costa at the base, and another beyond the middle.

In the Author's Cabinet.

The genus Amblycephalus, which I described three years since in the Entomological Magazine, belongs to that division

of Tettigonidæ which has long bristly hind legs, and is separated from neighbouring groups by its subtrigonate but rounded head: from Eupteryx it is at once distinguished by its ocelli, which are absent in that genus, and generally it differs also in its more robust form and shorter wings, which do not cover the apex of the abdomen in the typical species, and these are further marked by the elevated anchor-shaped lines on the fore part of the head. Although the following species vary considerably in their form, yet they all agree in having two ocelli *behind* the anterior margin of the head, but they are more remote and placed further behind in some than in others.

a. Ocelli remote, placed on each side of the crown of the head.

1. A. viridis *Linn.*—*Panz.* 32. 9.—Length 5 lines.

Elytra green or bluish, head yellow spotted with black.

May to August, grassy places and aquatic plants, England; beginning of August, marshy places by the side of Loch Fad, &c., Isle of Bute.

b. Ocelli less remote and placed more forward.

2. interruptus *Linn.*—*DeGeer* 3. *tab.* 12. *f.* 6—10.—*Panz.* 32. 8.

Length $2\frac{3}{4}$ lines: elytra yellow with a black longitudinal stripe on each, divided obliquely.

May, grassy places; end of July, Niton, Isle of Wight, and Dover; middle of August, Isle of Arran, Scotland.

3. Germari *Curt. Brit. Ent. pl.* 572 ♀.

Found on the Burdock the end of June at Clifton by Bristol, and previously near London.

c. Ocelli approaching the margin of the eyes and near to that of the head.

5. maculipes *Curt. Guide.*—Length $2\frac{1}{2}$ lines.

Dull greenish ochre, shining: head lunate, trigonate before, two black marks on the crown, and numerous black lines across the face, a line of black dots near the anterior margin of the thorax: scutellum orange with a black cross and several spots: thighs piceous, tips ochreous, posterior tibiæ with the inner margin piceous, the outer one dotted with the same and their tarsi piceous, excepting the base and apex.—Obs. some specimens are almost destitute of black markings, excepting the tibiæ.

Beginning of May, not uncommon in Coomb-wood.

7. nervosus *Curt. Guide.*—Length $2\frac{1}{4}$ lines.

Slender, ochreous; head lunate, slightly trigonate, with 2 yellow stripes, thorax with 5: elytra longer than the body, sublanceolate, nervures whitish, with the apical cell dark brown and forming a stripe.

Further removed from the type in habit than the following species, but the head is less different. I have found it the middle of October in the Islands near Wakering, Essex.

d. Anterior margin of the head thin and projecting over the face, which is concave above. Ocelli further removed from the eyes and front.

6. irroratus *Curt. Guide.*—Length $2\frac{1}{2}$ lines.

Shining dusky ochre, minutely and thickly freckled with brown: legs, especially the 4 anterior, banded and spotted with the same colour.

A single specimen taken by myself.

The Plant is *Arctium Lappa* (Burdock).




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633.

APHRODES SABULICOLA.

ORDER Homoptera. FAM. Tettigonidæ.

Type of the Genus, Aphrodes maculipes *Curt.*

APHRODES *Curt.*

Antennæ inserted in cavities under the forehead and close to the eyes, as long as the head and very slender, triarticulate, 2 basal joints stout, 1st cup-shaped, 2nd oblong, 3rd a long seta, incrassated, composed apparently of several small joints at the base (4).
Labrum short, lanceolate, inserted under the clypeus (3).
Mandibles and *Maxillæ* 4 strong bristles.
Labium very short, not so long as the clypeus (2), linear, triarticulate, basal joint transverse, 2nd quadrate, 3rd elliptical, rounded and pilose at the apex (2*).

Head *short and lunate, obtuse in profile* (1*); face *orbicular, convex but inclining;* clypeus *oblong, not emarginate, the angles rounded* (3 *c*); *with two* plates *on each side* (1 *g*) *united by a membrane* (A) *and terminating in front in an acute lobe* (*p*) *which is fitted under the labrum* (1 *front view of face,* 1* *head and thorax in profile*): eyes *small oval lateral, touching the thorax and scarcely projecting beyond its sides:* ocelli 2, *very minute, remote and placed upon the margin of the forehead.* Thorax *transverse, ovate-lunate:* scutel *trigonate cuspidate.* Abdomen *elongate-trigonate:* ovipositor *rather short stout a little curved and obtuse, the sheaths very bristly outside.* Superior wings *or* elytra *convex, deflexed, considerably longer than the body, with several longitudinal nervures and a few cells at the apex* (9)*:* inferior *ample, with* 3 *cells at the apex, and a large furcate one near the anal angle.* Thighs, *posterior spined at the apex:* tibiæ, *anterior with a few spines outside and pectinated inside* (6)*; posterior long, compressed, slightly curved, with series of long spines externally and ciliated internally, except at the base:* tarsi *rather short, triarticulate, basal joint the longest in the hinder pair.*

SABULICOLA *Curt.*—*Guide, Gen.* 1059. 9.
In the Author's Cabinet.

My genus *Aphrodes* comprised two groups, one of which had been previously established under the name of *Acucephalus* by Germar, which was lately illustrated in pl. 620. The form of the head, which in our typical species is obtuse, is more or less pointed and hollow above in Germar's genus; the thorax is often longer and narrower, as well as the elytra in *Aphrodes*, the cheeks are not dilated, the clypeus is not emarginate, the rostrum is shorter; there are trifling differences in the neuration of the wings, and the anterior tibiæ are spined on the outside as well as internally. The following species are described from my Cabinet.

1. concinna *Curt.* Ochreous, elytra with 2 bands and a lunate mark at the apex whitish, all margined with brown, 1st band interrupted at the middle, leaving a spot on the costa, 2nd interrupted; tips of tibiæ, hinder thighs and tarsi brown, inside of hinder tibiæ pitchy: 2 lines.
2. Testudo *Curt.* Similar to the last but with 2 brown bands, one across the middle of the elytra, the other near the apex.

3. rivularis *Germ.*? Head, thorax and scutel black, the 1st variegated with yellow, the 2nd with the anterior edge and a band at the base yellow; elytra ochreous with 5 or 6 oblique piceous lines and a brown spot near the apex: 1¾.
4. puella *Curt.* Greenish or brownish white, head with an oval ring of black dots, face and legs spotted with black, base of thighs piceous; elytra with 9 or 10 brown spots, with the apex of the same colour, the nervures and the spaces between 2 brown spots on the costa towards the apex, pearly white: 1¼.
5. insularis *Curt.* Ochreous, head with 2 triangular and 2 round dots at the apex; elytra with the spaces between the nervures margined with brown, costa brown towards the apex with 2 pale spots; abdomen blackish with a white band at the apex: 1¼.
6. costata *Curt.* Similar to the last, but the face above is ribbed with black; thighs banded, legs spotted with piceous; elytra indistinctly clouded, apex of abdomen ochreous.
7. pallidipennis *Curt.* Ochreous with a greenish tinge; elytra slightly reticulated with brown at the apex; face with several brown ribs: 1⅔.
8. maculipennis *Curt.* Ochreous, clypeus with a brown spot and a curved line on the cheeks, face brown with 7 curved ochreous ribs on each side; crown with 2 small and 2 large brown spots; thorax with 4 brown stripes: abdomen black above except at the apex; elytra variegated with brown, except on the costa: 1¾.
9. sabulicola *Curt. B. E. pl.* 633. Pale ochreous, upper part of face and crown variegated with ferruginous brown: abdomen black, sides and apex ochreous; elytra glaucous when closed, with 5 brown spots and smaller ones near the apex; nervures pearly white: wings with a fuscous spot at the apex.

4th June, not uncommon on the sand-hills near Lowestoft.

10. sulphurea *Curt.* Greenish yellow, very glossy, 4 pale dots on the forehead and 2 on the scutel; elytra pale, tips and wings pale fuscous, pectus and dots on hinder tibiæ piceous: 2¾.
11. tæniola *Curt.* Ochreous, clypeus and cheeks with 5 vertical stripes, face with a double row of black ribs, crown with a black band; thorax dotted with black; elytra duller, legs spotted piceous, hinder tibiæ with a stripe down the inside: 2.
12. Craticula *Curt.* Similar to the last, clypeus with narrow marks, face with very fine ribs, crown with 6 dots in triangle; thorax, scutel and inner margin of elytra dotted: legs striped and spotted: 2¼.

End of July, on rushes: it is infested in the different stages with a large black parasite attached to the sides of the thorax.

13. maculipes *Curt.* Dark ochreous, cheeks, 3 dots and many ribs on the face black; crown, anterior margin of thorax and scutel with black dots, the latter with a cross; apex and inner margin of elytra with fuscous spots; wings fuscous; base of anterior thighs black, hinder legs striped and dotted: *female* less marked: 2½.
14. nitida *Curt.* Face ribbed with black, head and scutel dotted; thorax with 4 fuscous indistinct stripes; elytra freckled, except at the costa; legs spotted, hinder tibiæ striped: 1¾.
15. unimaculata *Curt.* Dull ochreous, face with imperfect ribs, head with fuscous dots, scutel with one black dot at the base, elytra partially freckled; abdomen black at the base, with black dots down to the apex; legs faintly spotted, hinder tibiæ striped: 2.
16. lata *Curt.* Broad, shining ochreous, base of abdomen freckled with black, a line of dots down the back and oviduct piceous: 2½.
17. pulverulenta *Curt.* Ochreous, dull with a whitish bloom, forehead trigonate; legs dotted, hinder tibiæ with a dark line inside: 2½.

Middle of October in New England on the shores of Essex. The Plant is *Bupleurum tenuissimum*, Least Thorough-wax.




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620.

ACUCEPHALUS TRICINCTUS.

ORDER Homoptera. FAM. Tettigonidæ.

Type of the Genus, Aphrodes bicincta *Curt.*

ACUCEPHALUS *Germ.*—Aphrodes *Curt.*—Jassus *Germ.*—Cercopis *and* Cicada *Fab.*

Antennæ very slender, inserted in cavities under the forehead and between the eyes (4), 8- or 9-jointed, 2 basal joints stout, 1st chalice-shaped, 2nd oval, the remainder slender, forming a seta, 3rd joint narrowed at the base, longer than any of the following which are oblong or ovate, the terminal one forming a long naked bristle (4 *a*).

Labrum very short, attached under the clypeus, lanceolate (3).

Mandibles and *Maxillæ* slender filaments.

Labium not longer than the clypeus, beneath which it is inserted (2), slender, slightly pubescent, triarticulate, basal joint short, 2nd the stoutest, oblong, 3rd slenderer, but scarcely longer (2 *).

Head *depressed or hollowed above, subtrigonate-lunate, wedge-shaped in profile;* face *inclined, suborbicular, the upper and lower points slightly angulated,* clypeus *oblong, emarginate, the cheeks inflated* (1 *front view of the face*): eyes *small, ovate, lateral, touching the thorax and scarcely projecting beyond its sides:* ocelli 2, *very minute, remote and placed upon the margin of the forehead.* Thorax *transverse, ovate-lunate:* scutel *trigonate, cuspidate.* Abdomen *trigonate:* ovipositor *rather short, stout, a little curved and obtuse.* Superior wings *convex, deflexed, not longer than the body, with several longitudinal nervures, and a few cells at the apex:* inferior *ample, with* 3 *cells at the apex and* 2 *furcate nervures towards the anal angle* (9*). Thighs, *posterior spined at the apex.* Tibiæ, *anterior spined internally, posterior very long, compressed and curved, with series of long spines on the outside and internally towards the apex:* tarsi *rather short and triarticulate, basal joint the longest in the hinder pair:* claws *and* pulvilli *short* (6 † *hind leg*).

TRICINCTUS *Curt.*—*Guide, Gen.* 1059.

Piceous; some dots in front of the head and a line at the base ochreous, face and breast of the same colour, with a piceous spot on the parapleuræ: thorax with a yellow band at the base; elytra with 2 yellow bands, one before, the other beyond the middle, the former broken, forming a large spot on the costa and a lunate one on the suture, the latter sinuated, with a spot nearer the apex; anterior legs spotted with ochre, base of the other thighs and centre of intermediate tibiæ ochreous.

In the Cabinets of Mr. Dale and the Author.

THIS group, which formed the 2nd division of my genus Aphrodes, appears to be synonymous with Germar's *Acucephalus.* It is at once distinguished from Tettigonia, which it very much resembles, by the long spined hinder tibiæ, from

Amblycephalus by the shape of the clypeus, and from other neighbouring groups by the form of the head, which is like that of Eupelix, but much less developed.

The following descriptions will serve to characterize some of our species.

1. Cardui *Curt.* ♀ 3¾ lines long: dull ochreous, inclining to ferruginous or olive, more or less freckled with brown nervures, irregularly marked with brown; a black spot on each side the parapleuræ; the abdomen beneath thickly freckled with black.

End of August on Thistles, in the Isle of Wight.

2. obscurus *Curt.* ♀ 3½ lines: dull ochreous or reddish, obscurely variegated with brown, leaving 2 or 3 pale spots on the suture: this may be a variety of No. 1, but it is narrower and the thorax is rather longer.

3. sparsus *Curt.* 2⅔ lines: head and thorax narrow: pale ochreous, shining, very thickly freckled with brown; hinder tibiæ and underside piceous, pectus bluish.

Female end of July, Tollsbury marshes, Essex.

4. rugosus *Curt.* ♀ 2½ lines: rather broad, dull ochreous clouded and freckled with brown, with a few broken yellowish lines on the nervures and some spots on the costa, 3 black dots at the base of the head, centre of the face densely freckled; a spot on the parapleuræ, extremity of hinder tibiæ and all the tarsi piceous.

5. unicolor *Curt.* 2⅔ lines: rather narrow and ochreous: eyes, cavity of the antennæ and a spot on each side the parapleuræ black; base of abdomen dusky.

End of August, Isle of Skye.

6. fasciatus *Curt.* ♀ 2¼ lines: pale yellow, 2 black dots at the base of the head and several on the edge of the crown: thorax dirty ochre with a yellow band across the middle; large black spots on the pectus, base of the abdomen blackish, a spot inside the apex of the hinder thighs, a long line inside their tibiæ, and tips of all the tarsi piceous.

End of June, under stones, Isle of Portland, with the following.

7. pallidus *Curt.* 2¼ lines: pale ochreous, head and thorax with a pale band on each, interrupted in the centre; dots on the forehead, spots on the parapleuræ and base of the abdomen black; obliqne striæ on the face and legs, excepting the hinder thighs, deep ochre.

8. bicinctus *Curt.* 2⅓ to 3 lines: pale reddish brown with an ochreous band on the head and another across the centre of the thorax; nervures on the elytra pale yellowish as well as the anterior coxæ and hinder thighs.

Beginning of May, Coomb Wood; end of July, Dover.

9. bifasciatus *Don. Brit. Ins. v.* 11. *pl.* 387. 2 lines long: piceous, thorax and 2 bands on the elytra ochreous; the apical band is sometimes white.

End of June, Lord Breadalbane's Park, Taymouth; beginning of June, Coomb and near Faversham, Kent.

10. trifasciatus *Fab.—Coq. Icon. pl.* 8. *f.* 10.

11. tricinctus *Curt. Brit. Ent. pl.* 620. ♂.

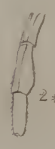
End of June, Weston on the Green, and July, Whittlesea Mere, J. C. Dale, Esq.

The Plant is *Aira præcox* (Early Hair-grass).

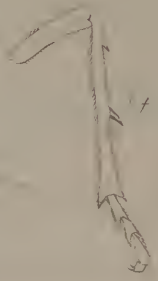





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461.

CERCOPIS VULNERATA.

ORDER Homoptera. FAM. Cicadiidæ.

Type of the Genus, Cicada sanguinolenta *Linn.*

CERCOPIS *Fab., Lat., Curt.*—Cicada *Linn., &c.*

Antennæ inserted in a cavity on each side the face, near the inner margin of the eyes, minute, 4-jointed, basal and 2nd joints short and stout, the 1st a little the largest, truncated obliquely, the latter subovate-truncate, 3rd small ovate-conic, producing a moderately long compressed naked seta, and a nearly parallel transparent spine also at its base (4).

Labrum minute, elongate-trigonate, the sides thin and transparent (3).

Mandibles and *Maxillæ* stout and setiform.

Labium not so long as the head, pilose and triarticulate, basal joint the smallest, 2nd the longest, clavate, 3rd a little longer than the 1st, oblong and rounded at the apex (2*).

Head *trigonate, angulated on the forehead; clypeus rounded and transversely striated* (1, *the face*): eyes *small, globose and lateral*: ocelli 2, *at the hinder part of the head.* Thorax *much broader than the head, the sides angulated slightly emarginate at the base*: scutellum *trigonate-acuminate.* Abdomen *short, trigonate-conic.* Wings *rounded, deflexed, especially towards the apex*; superior *coriaceous*; inferior *more or less transparent with several longitudinal nervures, united by a transverse one before reaching the margin.* Legs, *anterior short, hinder pair formed for leaping.* Thighs *short.* Tibiæ, *posterior the longest, with a tooth outside near the base, another at the middle and several at the apex.* Tarsi *short and triarticulate, basal joint nearly concealed in the anterior, a little the longest in the posterior pair, terminal joint clavate.* Claws and Pulvilli *distinct* (6†, *hind leg*).

Obs. *The dissections are taken from the species figured.*

VULNERATA *Rossi F. E.* 2. 350.—*Curt. Guide, Gen.* 1061. 2.—sanguinolenta *Panz.* 33. 10.—*Don.* 2. *pl.* 54. 1.—dorsata *Ahr.* 1. 21. *var.* ?

Black, head, thorax and elytra thickly punctured, the edges of the segments of the body and the apex partially red: elytra with an oblong scarlet spot on each side the scutellum, another somewhat rounded one on the disc of each, and a 3rd large lunulate one towards the apex, meeting on the back: wings fuscous, except towards the upper margin, where 3 or 4 of the nervures are scarlet as well as the base.

In the Author's and other Cabinets.

THE species just described is the only one that inhabits Britain; yet the *C. sanguinolenta* has always been recorded as

such; and to prevent further confusion I shall here characterize it.

1. C. sanguinolenta *Linn. S. N.* 2. 708. 22.—*Ahr. fas.* 4. *t.* 20.

Scarcely so large as No. 2, black, elytra with a long scarlet spot at the base of each, a round one on the disc and a narrow lunulate one towards the apex: abdomen red, banded beneath with black, and a row of red spots on each side of the same colour; apex of thighs and base of tibiæ red.

I took specimens of this insect, which is not found in the North of Europe, at Nismes and Montpellier.

Linnæus's description of *C. sanguinolenta* is so characteristic, that it is surprising how the two species could have been confounded; but Fabricius having once made the error, it has been echoed by every compiler since, from Dr. Turton to Mr. Stephens. The species were separated by Rossi, and were first recorded as distinct in my Guide.*

2. C. vulnerata *Rossi.—Curt. Brit. Ent. pl.* 461.

Taken in various parts of England in June and July, generally upon the Fern; but it also frequents grass, the Alder and Sallow. It is not uncommon in open places in the New Forest and Darent Wood. Mr. Dale takes it at Glanville's Wootton; and Mr. Denny has captured a variety near Cambridge, I understand.

The Plant is *Lycopus europæus* (Water Horehound).

* As there is space for an observation or two, I wish in justice to myself to state, that I am preparing a second edition of my Guide, which cannot fail to resemble Mr. Stephens's Nomenclature, for this palpable reason,—that he has not contented himself with correcting it from my Guide, and copying column after column from it, but he has actually adopted the style and plan of my work: so that his book now bears the exact resemblance of mine, and is rather a second edition of *my* Guide than of *his* Nomenclature;—a very modest act for one who has brought an action against another for the same trespass!

I may add, that when I began my Guide, Mr. Stephens, I believe, had no idea of printing a Nomenclature; I therefore could have no intention of interfering with his undertaking; and in truth my little Guide could not affect the sale of his ponderous Catalogue, and that was not published when the first sheet of the Guide appeared.

From the assistance promised me by some of our ablest entomologists, I hope to make the second edition of my Guide much better than that parasite which has been grafted upon it, and to render it by far the most useful and complete Catalogue of British Insects that has ever appeared.


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LEDRA AURITA.

Order Homoptera. Fam. Cercopidæ.

Type of the Genus, Cicada aurita *Linn.*

Ledra *Fab., Lat., Leach, Curt.*—Membracis *Oliv., Lam.*—Cicada *Linn., Geof.*

Antennæ inserted in small cavities before the eyes, but under the projecting forehead (1); short small and 5-jointed, 2 basal joints stout, somewhat ovate, 3rd and 4th small, of similar shape, 5th a long seta (4).

Rostrum very short and rather stout, passing horizontally between the anterior coxæ and then becoming perpendicular (2).

Labrum rather large, elongate-ovate, the apex acuminated (3).

Mandibles and *Maxillæ* short and setiform.

Labium short and stout, biarticulate, basal joint oblong, 2nd shorter more ovate and hairy (2 *).

Head *not broader than the thorax, the crown sublunate, the margin thin, sharp and projecting over the face, which is horizontal, quite flat or concave, broad and lozenge-shaped* (1): eyes *lateral, prominent, sublunate and close to the thorax:* ocelli 2, *placed on the disc of the crown, rather remote.* Thorax *large, subquadrate, convex, the sides producing* 2 *large, nearly erect rounded lobes:* scutel *large, trigonate, the base convex.* Wings *deflexed in repose, superior large, somewhat elliptical, coriaceous and reticulated:* inferior *ample and membranous, with several longitudinal nervures.* Abdomen *short stout and somewhat conical:* ovipositor *long and stout.* Legs *short, hinder formed for leaping:* thighs *short:* tibiæ *short, angulated and pubescent; hinder long, with the outer margin dilated and serrated towards the apex:* tarsi *short and triarticulate, basal joint the shortest in the anterior, 2nd the shortest in the posterior:* claws *dilated at the base, the apex horny and acute* (6, *a fore,* 6 † *a hind leg*).

Aurita *Linn.*—*Curt. Guide, Gen.* 1063. 1.

Dull olive-green; head covered with small reddish tubercles, having 3 elevated longitudinal lines: thorax with an erect semioval lobe on each side, the margin crenated and ferruginous; apex of scutel and back of abdomen more or less ferruginous: elytra green with numerous punctures forming a crowded reticulation at the base, the apex subhyaline, nervures more or less brown; inferior wings pale fuscous, the nervures brown, and sometimes a portion of the wings next the abdomen; tibiæ, especially the hinder, dotted with black.

In the Author's and other Cabinets.

Of all the strange forms we meet with in the Insect world, there are none more singular and grotesque than those which are to be found in the groups allied to the insect before us. Ledra even is remarkable for its shovel-head and two ear-shaped appendages on its back; characters which readily distinguish it from Cercopis (pl. 461), a genus which Latreille placed next to it; and from the Membraces, of which Centrotus forms a part, it is separated by its simply truncated thorax, which is elongated into a tail in the Membraces (vide pl. 313.).

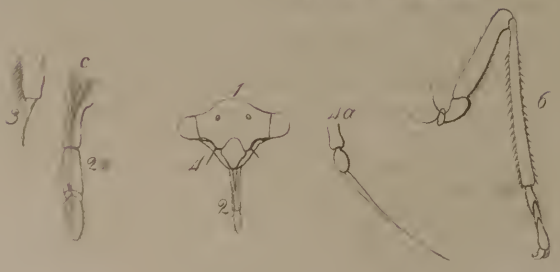
Our species is the only one of the genus, I believe, and it is by no means a common insect: Mr. Samouelle states that they "inhabit the oak and various trees in woods." I have generally found them upon oaks in June and July, but only in Darent Wood. Mr. Dale has met with it I believe in Hampshire, and I have a pupa that he gave me which considerably resembles the perfect insect in colour and the form of the head, but the auriculate lobes are not developed, they are merely indicated by 2 raised carinæ; the elytra are short and applied close to the sides; and the abdomen is somewhat depressed, with the margin round the apex dilated, crenated, thin, and horny.

Whether these insects live in their early stages in the frothy secretions that envelop those of kindred genera I am ignorant, being unacquainted with their œconomy.

The perfect insect is represented of its natural size at fig. N with its wings closed, and in Kirby and Spence's Introduction to Entomology there is a coloured figure of it in a similar position.

The Plant is *Centaurea Calcitrapa*, Common Star Thistle.




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CENTROTUS GENISTÆ.

Order Homoptera *Leach.* Fam. Cercopidæ *Leach.*

Type of the Genus, Cicada cornuta *Linn.*

Centrotus *Fab., Coq., Panz.*—Membracis *Fab., Lat.*—Cicada *Linn.*
Antennæ inserted in cavities beneath the margins of the head, near the base of the clypeus (4); triarticulate, basal joint oblong, 2nd oval, 3rd subsetiform (4a).
Labrum membranous, as long as the basal joint of the labium, attenuated to the apex and acute (3).
Mandibles inclosed in the labium, slender and dilated at the base (2*c).
Maxillæ undiscovered.
Tongue long and very slender.
Labium as long as the head, not very stout (2); triarticulate, basal and 2nd joints of equal length, 3rd scarcely shorter oval and pilose (2*).

Head *vertical, transverse, subtrigonate, frequently concealed beneath the thorax.* Clypeus *forming a lobe.* Eyes *lateral, very prominent and globose.* Ocelli 2 *on the crown of the head* (1, *front view of head*). Thorax *large gibbous variously formed, produced over and concealing the* Scutellum *which is bidentate at the apex.* Abdomen *short, cylindric and conical.* Ovipositor *contained in a sheath beneath, half the length of the body.* Elytra *and* Wings *deflexed when at rest, the former subcoriaceous with strong nervures, longer than the body, the latter shorter and membranous with fine nervures.* Legs *short, excepting the hinder pair which are formed for leaping.* Thighs *not very robust.* Tibiæ, *posterior very long and serrated on both sides.* Tarsi *triarticulate, 2nd joint the shortest in the posterior pair, 3rd a little the longest.* Claws *strong, short and emarginate at the apex* (6, *a hind leg*).

Genistæ *Fab. Ent. Syst. v.* 4. *p.* 15. *n.* 31.—*Panz.* 50. 20.

Dull black, covered with ochreous pubescence, especially the head and thorax, which are excessively thickly punctured, the latter produced in a long spine over the body which is punctured. Elytra shining, pale ochreous, the nervures brown and pubescent, the base piceous and punctured, a brownish spot mid-way the costa where the nervures are very dark, and a narrow fimbria pale brown also. Wings iridescent, the nervures brown. Legs piceous, the posterior tibiæ and the apex of the others ferruginous: tarsi of the same colour.

Obs. This insect is sometimes of a ferruginous brown.

In the Author's and other Cabinets.

Of all Nature's works, amongst the insect tribes, this family is the most remarkable for the grotesque and extraordinary forms the species exhibit; the thorax being produced in the shape of horns of the most whimsical figures and in various directions; sometimes projecting over the head like a helmet, at others forming a tail, which looks quite artificial, and again assuming the characters of ears or the horns of animals. Some of these prodigies are represented in the 18th Plate of Coquebert's Illustrations, in the 4th vol. of Germar's Magazine, and I think in the Magazine of Natural History.

In essential characters Centrotus nearly resembles the true Cicadæ; and for what reason the only two species that inhabit Britain should have been lately placed in two distinct genera, it is difficult to discover, since the differences between them are such as are entirely specific. Indeed we have none of the true Membraces of Fabricius in Britain: they are at once characterized by their compressed form, some of them being so much flattened that they appear as if they had been pressed by some accident; and it is even difficult to pass a pin through them vertically.

Latreille formerly united Centrotus with Membracis, but he has since separated them. Fabricius in the *Systema Rhyngotorum* has included both our British species in his genus Centrotus; and to render this subject more complete, I shall proceed to describe the type.

1. C. cornuta *Linn. Faun. Suec.* 879.—*Fab. Ent. Syst. v.* 4. *p.* 14. *n.* 22.—*Panz.* 50. 19.—*Don* 3. *pl.* 83.—Four times as large as *C. Genistæ.* Black, clothed with ochreous pubescence, particularly the head and thorax; the latter with a triangular horn on each side, and the posterior part forming a long keeled tail hanging over the body. Superior wings shining ochreous, brownish at the base with a macula at the posterior angle, the nervures pale ferruginous. Inferior wings iridescent, nervures brown, legs ferruginous, thighs piceous black.

Common in woods, gardens and hedges; on thistles, willows, nut-bushes, white-thorns, laurels, box-trees, heath, the underside of dock-leaves, &c. in May and June.

2. C. Genistæ *Fab.*—*Curtis Brit. Ent. pl.* 313.

Found in August on commons upon *Genista tinctoria* (Dyer's Green-weed), the plant that accompanies the insect.


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DELPHAX LONGIPENNIS.

Order Homoptera. Fam. Cicadiidæ or Fulgoridæ.

Type of the Genus, Delphax minuta *Fab.*

Delphax *Fab., Lat., Germ., Curt.*

Antennæ inserted on each side of the head, on the inferior margin of the eyes, not longer than the head, stout and 4-jointed, basal joint cup-shaped, 2nd large elongate-ovate, pubescent, scabrous at the apex, 3rd joint minute, globose, 4th a long naked seta (4). *Labrum* short, elongate-trigonate, acute. (3, side view.) *Mandibles* and *Maxillæ* setiform.

Labium not longer than the clypeus, inflected, linear, triarticulate, basal joint elongated, 2nd the longest and stoutest, 3rd short, pilose, subovate (2* side view).

Head *conical in profile, the crown trigonate, the forehead being produced;* face *very oblique, elongate-trigonate* (1)*:* eyes *lateral and reniform, notched at the insertion of the antennæ:* ocelli *two, close to the anterior margin of the eyes.* Thorax *broader than the head, but very short and somewhat lunate:* scutel *rather large and trigonate.* Abdomen *short;* ovipositor *long, slightly exserted.* Wings *deflexed in repose;* superior *very long, narrow and coriaceous, with numerous longitudinal nervures and a line of transverse ones towards the apex* (9)*;* inferior *ample and membranous, with many longitudinal nervures* (*). Legs *rather short, hinder longer, stouter, and formed for leaping;* thighs *linear:* tibiæ *not longer, slender, excepting the posterior, which are stouter, with a minute tooth outside at the base, and another at the centre, the apex incrassated toothed and furnished with a large compressed pectinated spur* (6 †)*:* tarsi *short, triarticulate,* 2 *basal joints stout and toothed at the apex in the hinder pair, the* 1*st elongated:* claws *minute.*

Longipennis *Curt. Guide, Gen.* 1065.

Ochreous, head and thorax with a dorsal yellow line; metathorax spotted with black: abdomen black with a variegated orange space at the base, the sides orange dotted with black: superior wings blackish, excepting the costa, which is pale and terminates in a white stigma, and the inferior margin which is ochreous, broadest at the base: inferior wings fuscous at the apex: 4 anterior legs black, apex of thighs, base of tibiæ and tarsi, except the tips, whitish; hinder legs pale ochreous, thighs above and apex of tarsi black.

In Mr. Dale's Cabinet.

Delphax is distinguished from *Asiraca* (pl. 445) by the short basal joint of the antennæ, and from my genus *Criomorphus* by its ample wings. A species figured and described by Mr. Westwood in the 6th vol. of Loudon's Mag. Nat. Hist. under the

name of *D. saccharivora* is very destructive to the sugar-cane in the West Indies. The following are British examples of the genus, and most of them frequent the borders of rivers and brooks.

1. longipennis *Curt. Brit. Ent. pl.* 657 ♂.

This fine species was discovered by Mr. Dale amongst sedges and bushes in a copse at Glanville's Wootton, called Broad-Alders, the 15th Sept. 1836; it was nimble and leaped well.

2. minuta *Fab.*—lineola *Germ.*—*Ahr.* 17. 19.

September, upon reeds on the cliff by Black-gang-chine, J. C.; on sedges, Glanville's Wootton and Weston-on-the-green, Mr. Dale.

3. marginata *Fab.*—minuta *Coq. pl.* 21. *f.* 4.

Middle of June, Coomb Wood, and on rushes by the side of a river near Slaughter, Oxfordshire, J. C.

4. striata *Fab. Ent. Syst.* 4. 7. 24.

5. suturalis *Curt.* Ochreous, face with 3 yellow ridges, central one furcate on the crown, wings hyaline, superior with the inner margin fuscous, apical nervures brown: expanse $3\frac{1}{4}$ lines.

I took a female at Dover in July 1826.

6. limbata *Fab. Ent. Syst.* 4. 6. 21.

Mr. Dale took a specimen near Barnstaple, Devon.

7. pictipennis *Curt.*—anceps *Germ.*?

Ochreous, variegated with brown, especially the scutel and abdomen; elytra pale yellowish with a large brown lunule at the apex, a yellowish-brown suffused fascia across the disc terminating on the inner margin in a brown stripe; apical nervures brown, the others dotted with black; legs variegated with brown: $3\frac{3}{4}$ lines.

Glanville's Wootton and Middlemarsh Woods, Dorset, Mr. Dale.

8. flavescens *Fab.*? *Ent. Syst.* 4. 7. 23.

9. pellucida *Fab.* 21st of May on Marrams, Tollsbury.

10. guttula *Germ. Mag. v.* 3. *p.* 216. *n.* 7. Ochreous, with a large black spot on each side of the face, crown of head, thorax and scutel yellow, sides of the latter brown: wings sublanceolate, hyaline, with a brown longitudinal stripe at the apex: $2\frac{2}{3}$ lines.

Beginning of August, near Loch Fad in the Isle of Bute, and off sedges, Gl. Wootton, Mr. Dale.

11. stigmaticalis *Lewis.* Ochreous, sides of thorax, scutel and abdomen brown: wings hyaline, nervures brown, the apical one forming a piceous edge terminating on the stigma, which is yellowish: 4 lines.

August, Isle of Arran, J. C.; and Gl. Wootton, Mr. Dale.

The Plant is *Colchicum autumnale*, Meadow Saffron.



Lathyrus hirsutus

445.

ASIRACA PULCHELLA.

Fairmaire 1849
Edwards 1897

ORDER Homoptera. FAM. Cicadiidæ.

Type of the Genus, Delphax clavicornis *Fab.*

ASIRACA *Lat., Curt.*—Delphax *Fab., Panz.*

Antennæ inserted in a notch beneath the eyes, longer than the thorax, robust, and 4-jointed, basal joint very long, stout and linear, compressed with a keel outside, scabrous on the inside, the inferior margin serrated with bristles, 2nd joint ovate-conic, tuberculated, producing spiny bristles, 3rd joint minute, globose, 4th a long slender seta (4).

Labrum short elongate-trigonate, acute (3, side view).

Mandibles and *maxillæ* setiform.

Labium scarcely longer than the clypeus, pilose, triarticulate, basal joint the shortest, 2nd the longest and stoutest, swelled a little beneath, 3rd joint longer than the 1st and slightly curved (2* side view).

Head *narrower than the thorax, long and vertical, crown somewhat lunulate, face elongate-trigonate:* clypeus *elongate-conic.* Ocelli *none.* Eyes *lateral and ovate, with a deep notch beneath.* Thorax *transverse short, somewhat lunulate:* scutellum *rather large and trigonate.* Wings *deflexed when at rest:* superior *ample coriaceous with numerous longitudinal nervures, a few transverse ones on the costa and an oblique one towards the apex* (9); inferior wings *membranous and minute.* Legs, *anterior very much dilated* (6): thighs *linear:* tibiæ, *posterior long with* 3 *spines on the outside, the apex surrounded with spines and a longer spur* (6†): tarsi *triarticulate, terminal joint the longest, except in the posterior pair, in which the basal joint is considerably the longest, and that as well as the* 2nd *is surrounded with spines at the apex.* Claws *and* Pulvilli *minute.*

PULCHELLA *Curt. Guide, Gen.* 1067, 3.

Smooth pale ochreous, face darker; eyes black: antennæ with the joints brown at the apex: thorax with a brown line on each side: abdomen blackish, except at the base, the segments margined and variegated with ochre: superior wings faintly stained with yellow, a brown irregular stripe along the centre, broken in the middle and forming a fimbria at the posterior margin, sometimes with pale spots between the nervures, and an oblique brown nervure towards the apex on the costa: inferior wings ample, iridescent, with a few of the nervures towards the costa brown: tarsi brown, excepting the 2 first joints in the hinder pair.

In the Cabinets of Mr. Dale and the Author.

I fear it will be necessary to divide these neighbouring groups considerably, for if we take the *D. clavicornis* and *minuta* Fab. as types of Asiraca and Delphax, the former distinguished by

the length of the basal joint of the antennæ, the latter by its shortness, we shall find a great number of species that differ very materially from them; the insect figured for instance has the antennæ and head of Asiraca, but the neuration of the wings and the form of the legs agree better with Delphax, as do those also of *A. dubia*: it will therefore form a very good subgenus, being distinguished from the type *A. clavicornis* by its simple anterior legs, and a great dissimilarity in the superior and the ample size of the inferior wings; the 2 first joints of the antennæ are also of nearly equal length: another group I have lately characterized in the Entomological Magazine under the name of Criomorphus.

In dissecting these insects I discovered on each side the labrum, or rather perhaps the clypeus, an acuminated horny lobe; they covered apparently the base of the mandibles or maxillæ, and are common to the insects of this division.

The following species have been taken in Britain.

1. A. clavicornis *Fab.*—*Coquebert's Icon. pl.* 8. *f.* 7.

Length nearly 2 lines. Piceous, antennæ, head and anterior portion of thorax ochreous; superior wings variegated with brown at the tips, the nervures slightly tuberculated and having series of short bristles: inferior wings minute; legs variegated with brown, anterior dilated, brown with a few ochreous spots, the tip of the tibia of the same colour.

Grassy places, end of April, in a clover field at Henstead, Suffolk, J. C.

2. A. dubia *Creut.*—*Panz.* 35. 20.—grisea *Lat.*

$2\frac{2}{3}$ lines long. Smooth, pale ochreous, robust; eyes black, 2nd joint of antennæ nearly as long as the 1st, both brown at the tips, a brown line on each side the thorax: superior wings shorter than the body, immaculate; inferior none; abdomen variegated with brown.

30th July and beginning of Sept., on rushes near Black Gang Chine.

3. A. pulchella *Curt. Brit. Ent. pl.* 445.—Allied to D. crassicornis *Fab.* and *Panz.* 35. 19.

I first discovered this pretty insect with the foregoing species, and Mr. Dale having taken them in company, imagined that *A. dubia* might be the pupa, but I think it may be the female of *A. pulchella*, for I have never seen a male of it, whilst of this species I cannot find a female. It has also been found by Mr. Dale in a damp situation near the sea at Charmouth, as well as another pretty species on reeds at the Peat Pits, Weston on the Green, near Oxford, together with a 5th having a very faint mark on the wings.

The beautiful Plant is *Lathyrus Nissolia* (Crimson Grass-vetch), gathered at Puckaster Cove in the Isle of Wight, and communicated by Charles Vine, Esq.


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CIXIUS DIONYSII.

ORDER Homoptera. FAM. Fulgoridæ.

Type of the Genus, Cicada nervosa *Linn.*

CIXIUS *Lat., Curt.*—Flata *Fab., Germ.*—Cicada *Linn., Fab.*

Antennæ inserted in cavities below the eyes on each side of the face (4), short and 4-jointed, 2 basal joints stout, 1st transverse, 2nd ovate, the apex depressed, 3rd small globose, but elongated and acuminated on one side, 4th a long naked seta (4 a).

Rostrum as long as the face, bent under the breast and reaching to the hinder coxæ.

Labrum short, elongate-trigonate, acuminated (3).

Mandibles and *Maxillæ* long, setiform and very slender.

Labium scarcely so long as the face, slender and triarticulate, basal joint concealed under the clypeus, 2nd very long, 3rd rather shorter (2).

Head *lunate, the crown hollow, short, and obtuse; face nearly vertical, very long and subovate, with 3 longitudinal ridges* (1, 1 *a the profile*); clypeus *narrow, elongate-ovate:* eyes *placed in a cavity on the sides of the crown, globose:* ocelli 2, *situated on each side of the face, between the eyes and antennæ* (1 *). Thorax *subcordate, rounded before, with a broad short collar, triangular behind.* Abdomen *very short and semiorbicular, often with a tuft of white cotton at the apex, especially in the females, with a strong* Ovipositor *composed of a horny oviduct, and 2 large sheaths extending beyond the apex, and meeting an incurved strong lobe projecting above.* Wings *ovate-trigonate in repose, slightly deflexed;* superior *subelliptic, coriaceous with numerous strong, often hispid nervures, reticulated at the apex, costa arched but depressed, inferior margin straight:* inferior wings *membranous, shorter and broader, with several smooth longitudinal nervures, 2 or 3 transverse ones and as many furcate at the apex.* Legs, 4 *anterior short and simple* (6, *a fore leg*): tibiæ, *posterior long and clavate, with a few short teeth outside and some longer spines at the apex:* tarsi *triarticulate, anterior short and slender, with the basal joint very short, and truncated obliquely, in the hinder pair they are elongated* (†), *with the 3rd joint slender and clavate:* claws *small.*

DIONYSII *Panz.—Curt. Guide, Gen.* 1068. 2^{c}.

Black; head ochreous, 2 spots on the crown and the spaces between the 3 elevated ridges on the face blackish, excepting the clypeus; collar and margins of thorax and scutel ochreous; a line on the sides of the abdomen scarlet: superior wings yellowish brown, costa dotted with black, with an interrupted colourless line reaching to the stigma, which is brown, the inner margin slightly white; nervures black dotted with ochre: inferior wings iridescent, nervures piceous, centre of the cells fuscous: legs ochreous, tips of thighs and apical joint of tarsi brown. The outline figure in repose shows the natural size.

In the Author's Cabinet.

CIXIUS is related to *Asiraca* (pl. 445) on the one hand and to *Issus* (pl. 449) on the other. It is well known that in some of the cognate genera there are curious appendages to the an-

tennæ, as in *Otiocerus* of Kirby, but I believe no one has before observed the elongation of the 3rd joint in *Cixius*. I am not aware that the œconomy of this group is known, yet the perfect insects are not uncommon, frequenting trees and shrubs; they rest with their wings closed, which they open to make short flights, and are assisted in rising by their hind legs.

These pretty insects seem to vary so much, and each often bears so considerable a resemblance in markings to the other, that it is difficult to say which are genuine species. The following however are recorded as such, and I have several others which I shall not venture to name until more attention has been paid to them. I may here observe that the *Flata serratulæ* of Fab. probably belongs to this genus, and I have been wrong in admitting the *F. musiva* of Germar into my list.

1. Cynosbatis *Fab. Ent. Syst.* 4. 41. 61.

2. nervosus *Linn.—Panz.* 103. 6.

3. cunicularius *Linn. Syst. Nat.* 2. 711.—nervoso-punctata *De Geer, v.* 3. *pl.* 12. *f.* 1. *&* 2.

Glanville's Wootton, J. C. Dale, Esq.; June, on Holly-bushes, by the side of a rivulet, near Lyndhurst; Bagley Wood near Oxford; Clifton near Bristol; 9th Aug. on the side of the cliff at Bonchurch in the Isle of Wight; and 23rd Aug. in the Cove at Isleonsay in the Isle of Skye, J. C.

4. Dionysii *Panz.* 34. 24. and canicularia 34. 21.

As this cannot be the *C. canicularia* of Linn. nor the *C. Cynosbatis* of Fab. I have restored Panzer's original name. It seems to be rare with us; the specimen figured I captured near Dover the middle of last August, and I believe Mr. Dale has taken another near Langport.

5. stigmaticus *Germ.—Ahr.* 11. 20.? If this figure represents Germar's insect, I think it may be identical with *C. Cynosbatis*.

End of May, Southampton; July, Dover; Aug. Isle of Bute on the Birch, J. C.; and at Glanville's Wootton, Mr. Dale.

6. pilosus *Oliv.—Lat. Hist. Nat.* 12. 311. 4.

June near Knaresborough, Yorkshire.

7. albicinctus *Germ. Mag.* 3. 199. 9.

Glanville's Wootton and New Forest, Mr. Dale; June, Bagley Wood, J. C.

8. contaminatus *Germ. Mag.* 3. 196. 7.

7th May, Coomb Wood and Dorsetshire; June, Bagley Wood and Hants.

9. leporinus *Linn.—Panz.* 61. 19.

Near Marley Wood, Lulworth, Mr. Dale; end of June Clifton, in abundance on coarse grass by the side of the Avon, J. C.

Having found several specimens of this insect last August at Sandwich upon the Thorn Apple, *Datura Stramonium*, that plant is represented in the plate.


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449.

ISSUS COLEOPTRATUS.

Fairmaire 146
Edwards 9/10

ORDER Homoptera. FAM. Cicadiidæ.

Type of the Genus, Issus coleoptratus *Fab.*

ISSUS *Fab., Curt.*—Cercopis *Fab., Panz.*—Cicada *Geoff., Don.*

Antennæ short, inserted under the eyes (4), composed of 4 joints, 1st and 2nd robust, the former somewhat cup-shaped, the latter ovate-truncate and pubescent, 3rd minute, 4th a long seta (4 *a*).

Labrum short slender and acute (3).

Mandibles and *Maxillæ* dilated at the base, and terminated by very long setæ, especially the latter (2, with the labium removed).

Labium shorter than the head, linear, triarticulate, 1st and 3rd joints nearly of equal length, 2nd a little longer.

Head *vertical, the crown short and truncated; face long and triangular, bent under the breast:* eyes *lateral globose and prominent, not notched beneath:* ocelli *none?* Thorax, *anterior portion short broad and subtrigonate;* scutellum *large and triangular.* Abdomen *very large and trigonate, being dilated at the base.* Wings *deflexed when at rest;* superior *coriaceous, as long as the body, subovate, the external margin produced and having an angular appearance near the base, with several longitudinal elevated nervures, connected by numerous transverse ones;* inferior wings *smaller and membranous coarsely reticulated.* Legs *moderately long.* Tibiæ *simple, excepting the posterior pair which are considerably the longest and have a spine outside at the middle, and another nearer the apex, which is serrated:* tarsi *short and triarticulate, basal joint the longest and serrated at the apex in the posterior pair, 2nd joint minute:* claws *acute:* pulvilli *distinct* (6† *hind leg*).

COLEOPTRATUS *Fab. Ent. Syst. v.* 4. *p.* 53. *n.* 26.—*Panz.* 2. 6.—*Curt. Guide, Gen.* 1069. 1.—dilatatus *Don. Brit. Ins. v.* 4. *pl.* 138, *f.* 5. & 6.

In the Author's and other Cabinets.

THIS insect varies so much in colour and markings, being sometimes nearly of an uniform clay colour, at others the elytra are dark with a paler band, that any one would at first

imagine there were many species of the genus; I believe, however, that one only has been found in this country.

The following is a description of the beautiful variety represented in the Plate which is in the collection of my friend Mr. A. H. Davis.

1. I. coleoptratus *Fab.*—*Curt. Brit. Ent. pl.* 449.

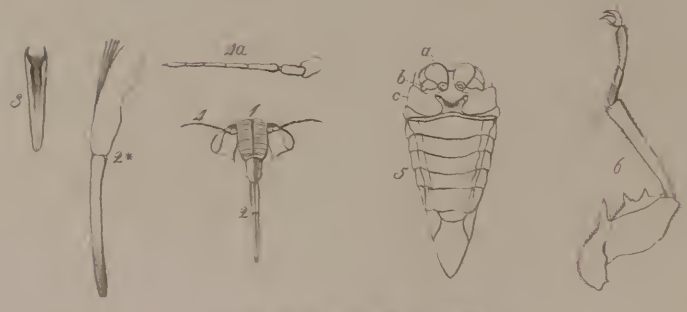
Pale ochreous, head, thorax and scutellum darker, variegated with brown; eyes piceous; abdomen ochreous, the base ferruginous, a broad space on each side black, greenish at the base; elytra with a band next the thorax brown, a large lanceolate spot on the costa towards the apex formed by the brown reticulated nervures and spots between, an oblique paler line near the posterior margin, and a >-shaped one a little beyond the middle; inferior wings dark fuscous, the nervures darker, paler at the base, with a faint rosy tinge: 1st and 2nd pair of legs with the tips of the thighs and tibiæ and a ring near the middle piceous, posterior thighs and base of tibiæ fuscous, tarsi tipped with piceous.

Obs.—The form of the insect with its wings closed of the natural size is shown towards the foot of the Plate.

Issus coleoptratus is found in hedges and woods round London, in May, June, and July; I have taken it in Norfolk, and Mr. F. Walker informs me that he often finds it in October on the flowers of the Ivy at Southgate.

The Plant is *Rhinanthus Crista-galli* (Yellow Rattle).




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CICADA ANGLICA.

ORDER Homoptera. FAM. Cicadiidæ.

Type of the Genus, Cicada plebeia *Linn.*

CICADA *Linn., Geoff., Lat., Sam., Curt.*—Tettigonia *Fab., Panz.*

Antennæ inserted beneath the head, in a cavity between the nasus and the eyes, short, setaceous, composed of 7 joints; 1st and 2nd of equal length cylindric, the former the most robust and nearly concealed in a cavity of the head, 3rd the longest, the remainder of equal length, not longer than the 2nd; the apical joint being the shortest, sublanceolate and terminated by a minute bristle (4 and 4 a).

Labrum rather short and tongue-shaped, thickened in the centre and horny at the base, membranous towards the apex (3).

Mandibles and *Maxillæ* inclosed in the labium.

Labium as long as the head, biarticulate, a considerable portion of the basal joint concealed beneath the clypeus, more robust and scarcely so long as the 2nd. (2, and 2*; the latter in profile, showing the mandibles and maxillæ detached at the base.)

Head *very broad and trigonate, the face convex in the centre and striated transversely* (1). Eyes *sometimes very prominent.* Ocelli 3 *in triangle.* Mesothorax *transverse separated from the* Scutellum, *which is very large and convex, by a transverse suture.* Postscutellum *sometimes cruciform.* Abdomen *robust and conical, composed of* 6 *or* 7 *segments, with* 2 *plates beneath at the base in the males* (5 c), *the apex cleft horizontally in the male; with an* ovipositor *concealed beneath in the female.* Wings *deflexed when at rest, meeting on the back, membranaceous, furnished with numerous nervures, united before reaching the posterior margin, superior much the largest, frequently twice as long as the body, elongate oval.* Legs *short.* Thighs; *anterior short, incrassated and toothed beneath* (6). Tibiæ *simple, posterior with a few strong spines below the middle, and several at the apex.* Tarsi *short and triarticulate, basal joint minute, 2nd a little longer, 3rd twice as long.* Claws *strong and curved* (5 *a* posterior coxæ, *b* pessellum.)

Obs. Figures 2, 5 and 6 are the head, body and fore leg of *C. Anglica.*

ANGLICA *Sam. Comp. pl.* 5. *f.* 2.—*Curt. Guide, Gen.* 1072. 2.

Male rather smaller than the female. Dull black, slightly clothed with soft hair and partially with fine golden hairs. Abdomen of the male with a cavity covered with a membrane on each side the basal joint above; margins of the abdominal segments, excepting the 2 first, ferruginous, the penultimate with a broad ochreous band, the lower apical lobe entirely ochreous. Wings slightly yellow, nervures brown, costa ochreous, base scarlet; inferior wings slightly brown at the anal notch. Legs ochreous; anterior coxæ and thighs variegated with black on the inside, the others with a brown stripe not reaching the apex; base of tibiæ and tips of tarsi piceous.—*Obs.* I have a variety with 2 triangular ochreous spots on the scutellum.

In the Author's and other Cabinets.

The Cicadæ are exceedingly interesting from their having attracted the notice of the most celebrated ancient poets and writers; and it is remarkable enough that whilst the Greeks loved and extolled them for their song, Virgil execrated them for their noise as well as more modern authors.

The males only are furnished with the curious apparatus for singing: a pleasing account of these insects will be found in the 2nd vol. of Kirby and Spence (p. 402); and in Latreille's Hist. Nat. tome 2. p. 293, their habits and œconomy are detailed.

The species of Cicadæ are very numerous and are distributed over a vast portion of the globe, from Europe to Brazil, the Cape of Good Hope, New Holland, China, and the intermediate countries. There are none much smaller than our British species, but I have a Herculean one from Penang, presented to me by my friend James Thompson, Esq., which measures 7 inches across, when the wings are expanded; in another from Java the plates are very remarkable, and form a lobe on each side nearly $\frac{3}{4}$ of an inch long.

No species has been found so far to the north I believe as *C. Anglica*. I have adopted this name, as I am not confident that it is the *C. hæmatodes* of Linn.; the *C. sanguinea* of Fabricius (*C. hæmatodes* Scop.) is a larger and different insect, which has never been found in England: we met with it in the vineyards in the South of France, where we also took *C. plebeia* on the almond trees, *C. Orni* on fir trees, as well as another the size of *C. Anglica*, and somewhat like it. Their songs were very different, but none of them very agreeable, and when the sun was unclouded the whole air vibrated with their singing.

C. Anglica was first discovered in the New Forest about 20 years since, and although Mr. Dale and myself have been unceasing in our endeavours to find it, we never succeeded until last year. The first I took on the 2nd of June, and on the 7th two more; the males fly about like humble-bees; the females I beat out of white-thorns, and some of them then flew into furze bushes, and when entangled in them, they made a buzzing like a Libellula similarly situated; they are found also on the stems of the Fern, and I suspect the larvæ live on the roots. I do not think our Cicada sings; the abdominal plates are very small and appear to me to be united. Mr. Dale kept a male alive 2 or 3 days, but it was perfectly mute. This, however, is by no means conclusive, because it may require heat and sunshine to call its powers of song into action.

Mr. Samouelle having represented the female, I have figured the male, which is by far the rarer sex. The Plant is *Aquilegia vulgaris* (Common Columbine).



Curtis Lepidoptera London Feb 1 1824

10.

NOTONECTA MACULATA.

Spotted Boatfly.

ORDER Hemiptera. FAM. Notonectidæ.

Type of the Genus, Notonecta glauca *Linn.*

NOTONECTA *Linn., Geoff., Fab., Lat., Curt. &c.*

Antennæ concealed in a cavity behind the eyes, minute, 4-jointed; basal joint very small globose; 2nd large somewhat cylindric; 3rd as long as the 2nd, but much more slender; 4th very small, conical (4).

Labrum exserted, large, triangular, convex; narrowed towards the apex (3).

Mandibles and *Maxillæ* passing through the rostrum like setæ, acute, the latter the shortest.

Labium as long as the head, inflected, arcuated, conical, 4-jointed, basal joint conical truncated, 2nd subovate-truncate, with a tuft of hair on each side beneath, 3rd twice as long, 4th small and bifid at the apex (2).

Head *vertical, transverse and rounded.* Eyes *large oblong, converging above, posterior margin sinuated* (1). Thorax *somewhat hexagonal, cylindric, narrowed before, the anterior margin sinuated.* Scutellum *large triangular, metathorax subquadrate.* Abdomen *oval, thick, flat beneath, terminated on each side by a small ciliated appendage.* Elytra *notched at the apex.* Wings *ample and transparent, with several nervures.* Feet, 4 *anterior with strong claws.* Tarsi *biarticulate, 1st joint the longest, hind pair elongate, strongly ciliated, with very minute claws* (6).

Larvæ *and* Pupæ *somewhat resembling the Imago, but less perfect.* Röesel, v. 3. tab. 27.

MACULATA *Fab. Ent. Syst. v. 4. p. 58. n. 3.—Curt. Guide, Gen. 1076. 3.*

In the Cabinets of Mr. Dale, the Author, &c.

THESE insects are to be found in ponds and ditches all the year, together with the larvæ and pupæ (which are smaller than the imago); the former are without, and the latter have only rudiments of elytra: they are said to feed upon animalcula. The perfect insect being capable of inflicting a considerable wound with its rostrum when taken, must be a formidable enemy amongst the weaker inhabitants of the water.

The wings, which are exquisitely delicate, and the elytra that protect them, are of little use to the insect in its natural element; but they are necessary to its preservation, by enabling it to seek a more congenial situation, when the place of its habitation is dried up by the heat of the sun, or other casualties. Upon approaching a pond these insects may be seen lying upon their backs, with their tails touching the surface of the water, and their heads inclined

downward, watching probably for their prey; and upon the least alarm they row off and dive with the greatest celerity, their hinder legs (which are most beautifully fringed with long silky hair) serving them like oars, from whence the appellation of Boatfly.

The genus Notonecta contains 3 species, differing only in colour and markings.

1. N. furcata *Fab. Ent. Syst.* 4. 58. 2.—*Don.* 16. 560. 2.—*Sam. pl.* 5. *f.* 3.
Length $7\frac{1}{2}$ lines. Ochreous, eyes piceous; head and thorax shining: scutellum metathorax and abdomen black, the latter with the margins ochreous-yellow: elytra brown with 2 broad pale ochre streaks at the base; a spot at the middle ochreous brown, edge of costa and apex pale fuscous variegated with brown: wings opalescent, with a slight yellowish tint, nervures piceous.

This species is less abundant than the next, but may be found plentifully round London and other parts of the kingdom, from April to October. Mr. Dale has observed it at Glanville's Wootton; Isle of Portland; and New Forest.

2. N. glauca *Linn. Faun. Suec.* 244. 903.—*Don.* 3. 75.
Length $6\frac{1}{2}$ lines. Ochreous, eyes piceous; head and thorax shining, the basal half of the former more or less lead-coloured: scutellum metathorax and abdomen black, the apex and sides of the latter ochreous: elytra with the costa ferruginous, bearing several blackish spots, and frequently a brown spot on the inferior margin; posterior margin semitransparent, the tip brownish: wings opalescent, with a slight yellowish tint, nervures ochreous. Sometimes the elytra are slightly sprinkled with brown spots on the inferior margin.

Found in almost every pond from the middle of March to the end of October.

3. N. maculata *Fab.*—*Curt. Brit. Ent. pl.* 10.—*Don.* 16. 560. 1.
Ochreous: eyes piceous; head and thorax shining, the latter inclining to cinereous behind; metathorax bright orange, black at the base as well as the scutellum: abdomen orange, with a semiorbicular velvety black patch at the base, lateral margin of the penultimate joint green: elytra orange-ochre, irregularly clouded and spotted with brown, posterior margin pale brown: wings opalescent, with a yellowish tint, orange at the base, the nervures brownish: legs sometimes greenish-ochre.

This beautiful insect is rarely found near London, but it has occurred at Turnham Green; in the West of England it is more abundant, and is found from the end of July to the beginning of October. Mr. Dale first met with it at Glanville's Wootton; afterwards in the New Forest; Isle of Portland; on Chedder Cliffs in a pond free from weeds, and in Scotland; at Charmouth; near Bath; also near Bristol, and in the neighbourhood of Exeter and Plymouth, by Dr. Leach.

A Notonecta allied to *maculata*, and discovered by the late Mr. R. Scales, is mentioned in the Entomological Transactions, which Mr. Dale says may be only a variety of *N. glauca*, which he has found to vary considerably, especially at Whittlesea Mere.

Cerastium aquaticum (Marsh Mouse-ear) is figured in the plate.


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NEPA CINEREA.

The water Scorpion.

ORDER Hemiptera. FAM. Nepidæ.

Type of the Genus, Nepa cinerea, *Linn.*

NEPA *Linn., Fab., Lat., Curt.*

Antennæ inserted below and a little behind the eyes (1*a*); short, linear, curved, bent upward and lying behind the eyes in repose, triarticulate, 2 basal joints stout, subovate, the latter pilose inside, 3rd as long as the others united, slenderer, pilose, a little attenuated and slightly curved at the apex (4).

Labrum lanceolate (3), as long as the basal joint of the labium and inclosing the

Mandibles and *Maxillæ* (*m*) which are capillary, curved and compressed, the latter membranous with the back thickened, the former rather longer, closely united, horny, the apex ciliated with short hairs.

Labium short, nutant, very stout and triarticulate, basal joint excavated above, the rest of the trophi passing over and forming a bridge (1, 3), 2nd joint a little the longest, oblong, truncated obliquely, 3rd joint shorter, much narrower and ovate-conic, pilose at the apex (2).

Head *small and narrow:* eyes *lateral, very prominent and subglobose:* rostrum *vertical.* Thorax *subquadrate, a little broadest at the base which is concave, anterior margin excavated in the middle to receive the head, all the angles rounded:* scutel *large and trigonate.* Abdomen *large, quite flat on the back, elongate-ovate, the apex pointed and furnished with* 2 *capillary filaments, shorter than the body.* Elytra *leathery, lying flat, the extremities crossing and indistinctly reticulated.* Wings *shorter but broader than the elytra, folded, with few nervures.* Legs, *anterior raptorious:* coxæ *stout, trochanters slenderer*: thighs *stout, a little dilated and notched at the base, attenuated at the apex:* tibiæ *short, linear and a little curved:* tarsi *elongate-conic, without articulations, but having a short stout horny claw at the apex* (6)*: the other legs slenderer, hinder the longest:* thighs *linear:* tibiæ *linear and simple, with a short spine at the apex:* tarsi *forming a longish, linear joint with two slender claws at the apex.*

Larva *and* Pupa *similar to the Imago, but without wings.* Roesel, v. 3. tab. XXII.

CINEREA *Linn.—Curt. Guide, Gen.* 1078. 1.

Muddy brown, head with a ridge down the middle; thorax uneven with a transverse suture towards the base, 2 elevated lines on the disc and 2 on each side of the base: scutel with the margins raised at the base: abdomen scarlet, brown at the base, centre of back and apex pale brown, filaments ochreous: wings yellowish-brown with yellow and scarlet nervures: anterior thighs with one or two ochreous spots and a ring of the same colour near the base of the tibiæ.

In the Author's and other Cabinets.

There are various species of this singular insect distributed over the old world, but I do not remember to have seen one from any part of America; yet the genera Belostoma and Naucoris are not uncommon there. The only species found in this country, and I believe I may add in Europe, inhabits ditches and ponds: it moves slowly, and when resting amongst the confervæ or mud at the bottom of the water it is easily overlooked, from its obscure dirty colour; yet when the wings are expanded, the fine scarlet tint of the back gives it a handsome appearance. I think there is little doubt that Nepa can fly, yet I never heard of one being detected on the wing. It is found throughout the year in every stage. The eggs are very remarkable, and resemble the seeds of some Syngenesious plants; they are deposited in a string, embracing each other by seven rays surrounding the apex, which close upon the base of the one before it.

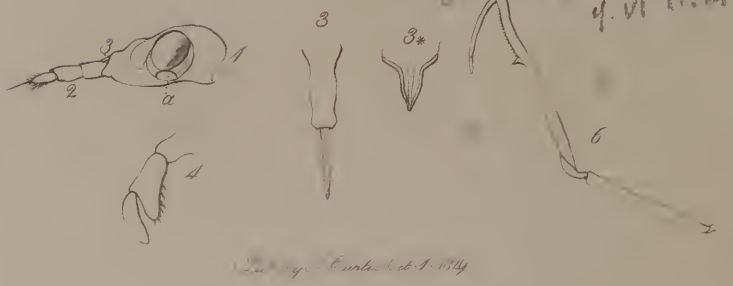
These insects, like *Ranatra linearis* (pl. 281.), are carnivorous, and live, I believe, in their different states, upon other insects and small animals, such as tadpoles, whether dead or alive: they are provided with powerful anterior legs, peculiarly adapted for seizing upon the larvæ and pupæ of other aquatic insects, more active than themselves, which are speedily despatched by their strong proboscis. Like other insects inhabiting the water, their antennæ are small, and their situation is similar to that of the flea, lying in cavities immediately behind the eyes. The filaments forming two tails are for the purpose of respiration when the insects are under water.

In the 7th volume of the "Annales Générales des Sciences Physiques" is an elaborate and curious memoir, by Mons. Leon Dufour, detailing the anatomy and organization of *Nepa cinerea* and *Ranatra linearis*, which are said to be very remarkable.

The plant is *Sagittaria sagittifolia*, Common Arrow-head.



Gentiana pneumonanthe
f. VI Fig. 11



RANATRA LINEARIS.

The linear Water-scorpion.

Order Hemiptera. Fam. Nepidæ *Lat.*, *Leach.*

Type of the Genus, Nepa linearis *Linn.*

Ranatra *Lat., Fab.*—Nepa *Linn.*—Hepa *Geoff.*

Antennæ inserted beneath the head, close to the margin of the eyes (1, a), and lying in a groove, short and triarticulate, basal joint subcylindric, 2nd large, produced and spinous on the inside, 3rd slightly curved, elongate-conic (4).

Labrum rather long and slender (3).

Tongue? attached to the head beneath the labrum, membranous, the edges coriaceous (3*).

Mandibles and *Maxillæ*, long and slender, passing through the labium.

Labium as long as the head, cylindric, triarticulate, 1st and 2nd joints most robust, the latter rather the longest, the centre lobed above, 3rd joint conical and pilose (2).

Head *small, subovate.* Eyes *lateral very prominent and globose.* Rostrum *porrected* (1). Clypeus *elongated (the upper part of fig.* 3). Thorax *elongated, slightly dilated anteriorly and more at the base which is emarginate.* Scutellum *turbinate.* Abdomen *long, linear, margined and slightly attenuated, divided at the apex and furnished with* 2 *long setæ.* Elytra *pergameneous, linear, an oblique portion of the apex membranous and reticulated.* Wings *rather shorter but much broader, folded, with a few nervures.* Legs; *anterior raptorius, scythe-shaped;* Coxa *very long and slender.* Femur *and* Tibiæ *united, very long and compressed, with a strong tooth on the inside at their union, the internal edge of the tibia being serrated.* Tarsus *forming a long curved, biarticulate claw, the terminal joint being minute* (6). Thighs *and* tibiæ *of the* 4 *posterior legs very long and slender.* Tarsi *slender, formed of* 1 *joint, terminated by long slender and but slightly curved* Claws.

Linearis *Linn. Faun. Suec.* 245. *n.* 908.

Fuscous ochre, sometimes with a reddish tinge. Eyes black. Abdomen red above, the margins ochreous, the apex brownish. Inferior wings opalescent, the nervures pale brown.

In the Author's and other Cabinets.

These singular animals inhabit the water in every stage of their existence, and it is said they prefer the deepest parts. The female forces her eggs into the stem of a *Scirpus*, or some other aquatic plant, so that they are concealed; and it is only the two bristles which are attached to one end of them that are visible. The plants containing the eggs are figured by Geoffroy; they are easily preserved in water, and may be kept till the young hatch.

The perfect insects leave the ponds and ditches they inhabit in the evening, and may be found, I have heard, on their borders amongst the mud, which they so much resemble in colour, that unless they move it is almost impossible to detect them. Like most other winged water insects they fly in the night, and sometimes it is said to a considerable distance, in search of places better suited to their habits in dry seasons, when many ponds and small pieces of water are dried up; as their eggs in such instances would be destroyed.

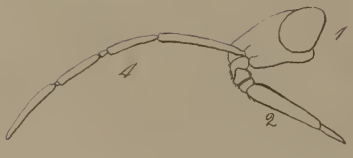
The *Ranatra linearis*, which is the only European species, lives upon other water insects, which it holds between its fore feet, whilst it pierces and sucks them with its beak or rostrum. They are found from January to July, and also in September, and most probably all the year: they seem to be generally distributed, and may be taken in most parts of the neighbourhood of London. Mr. Samouelle mentions Epping Forest, Copenhagen Fields, and Hammersmith; Mr. Donovan, Ilford, Essex; Dr. Stephenson has captured them on Wandsworth Common; and Mr. Henry Atkinson near Primrose-hill. They have been taken also in Norfolk and Suffolk; and I am indebted to Charles C. Babington, Esq. of St. John's College, for very fine specimens taken near Cambridge last spring.

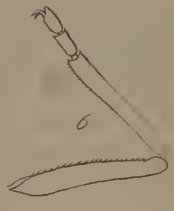
The plant is *Gentiana Pneumonanthe* (Calathian Violet).











Published by J. Curtis June 1 1835

553.

GERRIS APICALIS.

ORDER Hemiptera. FAM. Hydrometidæ.

Type of the Genus, Cimex lacustris *Linn.*

GERRIS *Lat., Guild., Curt.*—Hydrometra *Fab.*—Aquarius *Schel.*—Cimex *Linn., DeG.*

Antennæ inserted before the eyes on each side the nasus, as long as the head and thorax, filiform, 5-jointed, basal joint the longest and a little curved, 2nd and 4th shorter of equal length, 3rd minute, 5th longer than the 2nd (4).

Labrum short, dilated and ciliated at the base, terminating in an elongated attenuated and pointed lobe, transversely striated (3).

Mandibles and *Maxillæ* long slender and capillary, inclosed in the *Labium* which is longer than the head, rather stout pubescent and 4-jointed, basal joint somewhat cup-shaped, 2nd rather smaller, 3rd long and attenuated, 4th short slender and pointed (2).

Head *porrected, oblong, rather narrow and elongated, the apex produced and rounded, leaving shoulders for the attachment of the antennæ:* eyes *globose and very prominent* (1, *the head in profile*). Thorax *oblong, truncated before, ovate behind;* scutellum *invisible:* Abdomen *linear in the male, slightly ventricose in the female, the sides reflexed, the antepenultimate joint spined on each side, the* 2 *following joints narrowed, the apical one conical, especially in the female.* Elytra *and* wings *incumbent, the former coriaceous and covering the back with* 5 *strong longitudinal nervures; the latter membranous with very few nervures.* Legs *attached laterally, anterior raptorious, the shortest and stoutest, the others long and slender, intermediate the longest:* thighs *simple, longer than the tibiæ except in the anterior pair:* tarsi *biarticulate, the basal joint long, except in the anterior:* claws *curved inserted beneath the apex of the tarsi which projects over them* (6, *a fore leg*).

APICALIS.—*Curtis's Guide, Gen.* 1080. *n.* 6.

Black, silvery beneath; a long spot on the fore part of the thorax and a line on each side ochreous; margins of abdomen and apex beneath of the same colour; the lateral spines very short; underside of legs dull ochreous, tips of thighs and tibiæ and the tarsi brown, anterior with a spot at the base and apex only of the thighs ochreous: a line on the interior margin at the base of the elytra and the wings pearly white, apical portion of the latter brown.

In the Cabinets of Mr. Dale and the Author.

THESE insects by rowing with their posterior feet glide over the water with great swiftness, and their undersides are rendered impervious by the beautiful silvery hairs with which they are densely covered. Gerris is most nearly allied to Velia (pl. 2), but is distinguished by its horizontal head, the great length of the 4 posterior legs, which are very remote from the anterior, and the tarsi are biarticulate. Like Velia and Hydrometra, some adult specimens are apterous, as in *G. Pausarius* which is very like *G. paludum*, but I cannot

think they are one species, the females of the former being so much larger.

A. Lateral spines of abdomen, conical elongated and acute.

1. G. paludum *Fab.—Stoll. Cim. tab.* 9. *f.* 63.—lacustris *Don. v.* 4. *pl.* 118. *f.* 1.

Length $6\frac{1}{2}$ lines. Obscure black, antennæ and legs of same colour, anus, margins of thorax, and abdomen ochreous.

April, May, June, and August, ponds and ditches.

2. Pausarius *Curt.*

♂ 6 lines, ♀ 8. Apterous, dull black, silvery-yellow beneath; basal joint of antennæ equal to all the others in length; a gray line down the back of the abdomen formed of long dots; the scapes to which the legs are attached ochreous beneath, the space between the 4 posterior and an interrupted line down the belly ferruginous.

Although both sexes are apterous it is the largest of our species, and when the abdomen of the female is distended with eggs an ochreous line is very visible down each side of the back, formed by the membrane connecting the coriaceous covering. These insects were abundant in June and the beginning of July in a rapid little stream near Lyndhurst, and many of them were paired. Mr. Dale has seen them from April to October.

B. Lateral processes short, flat, and subtrigonate.

3. rufoscutellata *Lat.—Stoll. t.* 15. *f.* 108.

$4\frac{1}{2}$ to $5\frac{1}{2}$ lines. Obscure black; antennæ, excepting the apex, sides and lobe of thorax, margin of abdomen, anus and legs, ochreous.

March and April, ponds and ditches, Glanville's Wotton; September, Paddington.

4. variabilis *Curt.*

$4\frac{2}{3}$ lines: similar to No. 3, but the antennæ are black, excepting the base of the 2nd joint, the thorax has only a long spot before, with the margins rufous; the abdomen is ochreous beneath, excepting a black line on each side, whereas in No. 3 the margins and apex only are ochreous.

Taken on salt-water ditches I believe on the coast of Suffolk in August.

5. lacustris *Linn.—DeGeer v.* 3. *pl.* 16. *f.* 12.

Length $4\frac{1}{4}$ lines. Obscure black, margins of thorax, abdomen, anus, 4 posterior and base of anterior legs ochreous.

On stagnant waters: it is common in Norfolk.

6. apicalis *Curt. Brit. Ent. pl.* 553.

This pretty species was first communicated to me by my friend J. C. Dale, Esq., who discovered it by the Moore's river at West Hurne, Hants, also by Manaton or Bear Wood, Dorset, and afterwards in the New Forest: it appears from June to the end of September.

The Plant is *Veronica scutellata* (Narrow-leaved Speedwell).



Pubd by J Curtis London Jun 1 1824

2.

VELIA RIVULORUM.

ORDER Hemiptera. FAM. Hydrometidæ *Leach.* Cimicides *Lat.*

Type of the Genus Gerris currens *Fab.*

VELIA *Lat., Leach.* Hydrometra *Fab.*—Gerris *Fab., Coq.*—Cimex *Rossi.*

Antennæ porrected, filiform, subgeniculate, inserted considerably before the eyes in a cavity on each side the nasus, as long as the thorax, 4-jointed, basal joint rather the longest and stoutest, remainder of nearly equal length, the last conical at the apex (fig. 4).

Labrum short, dilated at the base, somewhat tongue-shaped, the sides membranous transversely striated (3).

Tongue none?

Mandibles and *Maxillæ* very long and slender, capillary, received into the labium or rostrum (2* c).

Labium[a] long, horny, inflected, attenuated (2), 3-jointed, 1st joint short, globose at the base (2* a) 2nd very long, attenuated (b), 3rd short and slender.

Head *small, somewhat vertical.* Eyes *globose, very prominent* (1). Thorax *much broader than the head.* Scutellum *none?* Abdomen *flat above, convex beneath; sides very much elevated and terminating in a spine on each side the anal joints, which are more produced in the males than in the females.* Elytra *and* Wings *sometimes wanting.* Legs *very remote at their insertion except the anterior pair which are the shortest, and raptorious; middle pair rather longer than the posterior.* Thighs; *posterior robust and serrated beneath in the males.* Tibiæ *simple, the middle pair ciliated.* Tarsi; *anterior very short, middle pair the longest; 3-jointed, basal joint very minute, 2nd the longest except in the anterior pair, in which the 3rd is the longest.* Claws *very slender, inserted laterally in a fissure* (6, *a fore leg*).

RIVULORUM *Fab. Ent. Syst. v.* 4. *p.* 189. *n.* 5.

Dark brown, velvety. Thorax projecting like a scutellum over the abdomen, deeply punctured, with two gray spots in front, and an orange mark between them; sides of the thorax and abdomen deep orange, the latter black at the base and apex, a black spot on the elevated edge of each segment, and a line of contiguous black spots down each side. Elytra with a long white spot at the base and 3 round ones down the middle of each. Wings fuscous with darker nervures.

In the Author's and other Cabinets.

[a] This is called the Rostrum; it is the analogue of the labium, and is similar to that part in the Diptera, being hollow and open above to receive the other trophi. The greatest difference seems to be in the absence of a tongue; the 4 setæ united probably form a tube which would supersede the necessity of such an organ. In figure 2* the part distinguished at *a*, may be analogous to the mentum, and *b* to the bilobed fleshy lip of the Diptera, which in this order is horny.

Velia is nearly related to Gerris and Hydrometra (Pl. 32), and like those genera is remarkable for occasionally wanting wings; and although 4 years since I was induced to offer an opinion which inclined to a belief that the apterous specimens might be the pupæ only, I am now almost convinced that they are a distinct species; for it is no uncommon circumstance in the New Forest to find the largest apterous species of Gerris united, the abdomen of the female being greatly distended: it is therefore still to be hoped that some assiduous entomologist who resides in a convenient situation, will endeavour to decide this doubtful and interesting question, by confining a sufficient number of *V. currens* (the common and apterous species) in a frame covered with coarse gauze, and letting it float where they have been observed to congregate.

In the winged specimens the thorax projects over the abdomen as in Gerris, and the scutellum seems to be wanting; the ciliated middle tibiæ common to both sexes, and the spined posterior thighs of the male, are not common characters, although they are observable in Gerris, from which Velia is distinguished by its shorter legs and 3-jointed anterior tarsi, the terminal joint of which projecting in a lobe over the claws is very remarkable and is less distinct in the other feet. The short and thick pile with which the undersides of these insects are clothed, repells the water so that they are not injured by its action.

1. V. currens. *Fab. Ent. Syst. v.* 4. *p.* 198. *n.* 22.—*Coquebert Icon. tab.* 19. *f.* 11.
Apterous, dark brown, velvety. Thorax truncated behind, with a reddish spot near the anterior margin and a gray spot on each side. Abdomen with 2 rows of gray spots down the back, the elevated sides orange and black, the under side orange also.

Very common from the earliest period of spring to the autumn, by the sides of rivers and on running brooks.

2. V. rivulorum *Fab.*—*Curtis Brit. Ent. pl.* 2.

This pretty insect has never been figured, and was unknown as an inhabitant of this country until specimens were taken by the Rev. W. Kirby, the Rev. John Burrell, and Dr. Leach: it has since been observed in considerable abundance by J. C. Dale, Esq. upon a stream of water running through his estate at Glanville's Wootton, Dorset; and Mr. Samouelle has met with it near Kew Bridge. It is found from the middle of March to the middle of July, and probably longer. I took several specimens in Scotland, 2 or 3 of them at a very considerable elevation upon the Ochil Hills near Stirling, in a very small but clear spring surrounded with rushes.

The insect in the plate represented flying is the male, that at rest the female, and the lines drawn near each denote their natural size. The plant is *Juncus articulatus* (Shining-fruited jointed Rush).



HYDRŒSSA PYGMÆA.

ORDER Hemiptera. FAM. Hydrometidæ.

Type of the Genus, Velia pygmæa *Duf.*

HYDRŒSSA *Burm.*—Microvelia *Westw.*—Velia *Dufour.*

Antennæ inserted before and near to the eyes, on each side of the head, as long as the thorax, pubescent and pilose, geniculated and 5-jointed, basal joint long and nearly linear, 2nd rather shorter and clavate, 3rd minute obovate, 4th not longer than the 2nd and much more slender, 5th the longest sublanceolate (4).

Rostrum bent under the head, reaching the anterior coxæ (2).

Mandibles and *Maxillæ* setiform.

Labium stout and attenuated, composed of 3 joints, 1st short and broad, partly concealed under the clypeus, 2nd the longest, attenuated, 3rd very much shorter, slender and conical at the apex (2 *).

Head *ovate, the crown convex* (1, *the profile*) *:* eyes *lateral, globose and prominent.* Thorax *much broader than the head, concave and narrowed before, the sides dilated and angulated, the hinder portion trigonate :* scutel *none ?* Abdomen *rather short and linear in the male, the sides reflexed and the apex slightly emarginate, with a small lobe in the centre ; ovate in the female, with the apex rounded.* Wings *decumbent in repose, superior elongate-ovate, narrowed at the base, with* 6 *indistinct cells formed by large nervures not touching the margins ; inferior wings shorter, broader, and somewhat ovate, and exceedingly delicate.* Legs *equal :* thighs *simple sublinear :* tibiæ *short, simple and slightly clavate :* tarsi *short, especially the anterior, which are also a little the thickest, biarticulate, basal joint very small in the anterior* (6 *), *2nd elongated, the apex projecting in a lobe over the* claws, *which are slender and curved ; in the other feet the basal joint is nearly as long as the* 2nd (†, *a hind leg*).

PYGMÆA *Dufr.—Curt. Gen.* 1081[b].

Velvety olive-brown : margins of eyes and underside shining with white pile : head and thorax with a faint ridge down the back, an ochreous band on the collar, divided in the middle and appearing in some lights whitish : abdomen dead black, excepting 2 shining lines at the base and a few spots down the middle : elytra white at the base, with 5 or 6 ochreous spots on the cells, 2 elongated ones towards the base, a large one on the disc bearing a longitudinal curved brown line, 2 large roundish spots above, one nearly apical, and 2 lines near the inferior margin : wings yellowish white and slightly iridescent, with 2 short brown basal nervures : base of antennæ and of thighs bright ochreous.

In the Cabinets of Mr. Haliday and the Author.

The family to which this insect belongs is remarkable for the large portion of individuals that appear without wings, which has led to a variety of opinions. The questions hitherto have been whether the apterous specimens of *Velia*, *Hydrometra*, and *Gerris* were perfect insects or pupæ, and if perfect, whether they were distinct species from the winged examples. I shall now add another question, Do they not undergo, like the Ephemeridæ, 4 metamorphoses? in which case the apterous would be the penultimate state of the winged species. That they are not in the imago state I should argue from the great variation in the thorax, which is generally less developed and sometimes very different in form to the winged specimens; and that they are not pupæ may be inferred from their being frequently found paired, and having no rudimentary wings. From a belief that the apterous specimens were not pupæ, I stated on a former occasion that they probably were distinct species (vide folios 2, 32, and 553), but from subsequent considerations I think it probable they may be in that state which I have termed Pseudimago in my memoir on the Ephemeridæ and Phryganidæ.

My friend Mr. Haliday has been the first to detect *Hydræssa pygmæa* in our Islands; he says, "They were taken in a marsh near Belfast in June and September; they move on the water more slowly than *Velia*, mostly among aquatic plants: the females seem more numerous than the males, and the winged specimens are very rare." I may add that these are a little the largest, and the apterous males and females differ materially in size but not in habit; the males are much smaller than our little figure ♀, and the females, the magnified appearance of which is given in outline, are as large as the little figure just referred to: they have a whitish sericeous band on the fore part of the thorax divided at the middle, and 2 spots near the base and the abdominal segments are of the same hue, excepting down the back; the legs are coloured like the winged specimens. In the males the white pile is not so evident.

Mons. Léon Dufour first noticed this pretty little insect on shady stagnant water round Saint Sever in Landes, and described it in the 2nd vol. of the Ann. de la Soc. Ent. de France: he found some hundreds of specimens, but only 2 or 3 with wings.

For specimens of the beautiful Fringed Bogbean, *Menyanthes* (*Villarsia*) *nymphoides*, I am indebted to Albert Kennedy, Esq., who gathered them by Woodford Bridge.



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32.

HYDROMETRA STAGNORUM.

ORDER Hemiptera. FAM. Hydrometidæ *Leach.*

Type of the Genus H. Stagnorum.

HYDROMETRA *Lat., Fab.* Cimex *Linn.* Gerris *Fab.* Aquarius *Schellenburgh.*

Antennæ exserted, filiform, inserted on the sides of the head towards the apex, 4-jointed, third joint very long. (4.)

Rostrum inflected, transversely striated, thickest towards the base and apex, obscurely 3-jointed, second joint very long. (2.2.)

Labrum small, linear, acute. (3. the profile, 3. a. the underside.)

Mandibles and *Maxillæ* } like setæ, passing through the rostrum.

Head *longer and narrower than the thorax, porrected, elongate, cylindric, thickened at the end.* Eyes *globose, prominent, inserted on the sides before the middle of the head.* Thorax *cylindric, anterior part narrowed.* Scutellum *minute.* Abdomen *more or less filiform, dilated in the middle; margins acute; terminal joint much larger in the male than female, cylindric, mucronated.* Elytra *coriaceous, long and narrow.* Wings *semitransparent, long and narrow.* Feet *long, slender, attached to the sides of the abdomen, anterior the shortest, posterior the longest.* Tarsi *indistinctly 3-jointed, first joint very minute.* Claws *inserted in a fissure at the extremity of the last joint of the tarsi, distinctly bifid only in the posterior pair.* (6. *a fore leg.*)

STAGNORUM *Linn. Faun. Suec.* 971. *Fab. Ent. Syst. t.* 4. *p.* 188. *n.* 4.

Velvety black. Thorax sometimes testaceous with a slight channel down the back. Abdomen with 2 nearly parallel lines down the back; edges dilated to the last segment with a griseous spot at each joint, shining down the centre. Elytra testaceous, clouded with black nerves. Wings fuscous with darker nerves. Feet and antennæ ferruginous or fuscous.

In the Cabinets of the British Museum and the Author.

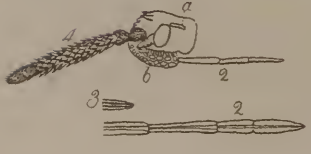
THESE curious insects are common in almost every brook and pond during the spring, where they may be seen with *Velia* and *Gerris* gliding along the surface of the water. Most of them are either apterous, or have only short parallel elytra; but in the British Museum are two females presented to that establishment by Dr. Leach, which have long elytra crossing each other when the insect is at rest, and perfect wings as ex-

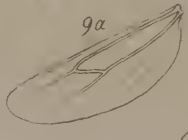
hibited in the specimen represented flying in the Plate. Like *Velia* and *Gerris*, to which our insect is closely allied, it is at present impossible to say whether the apterous specimens are pupæ or distinct species (from a difference in the colour of their legs, I am inclined to favour the latter opinion); but as far as regards the female figured, it appears extremely probable that winged specimens of the other sex would be found if sought for at the proper time of the year, as it generally occurs amongst insects, that the *males* have the advantage of wings where the *females* are apterous.

A male is represented walking at the base of the plant *Scrophularia aquatica* (Water Figwort): that flying is a female.











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DICTYONOTA CRASSICORNIS.

Order Hemiptera. Fam. Cimicidæ *Lat.*, *Leach.*

Type of the genus Tingis Eryngii *Lat.*

Dictyonota *Nob.*—Tingis *Fab., Lat., Panz., Fall., Leach.*—Cimex *Linn., Geoff., De Geer.*

Antennæ inserted before the eyes, on each side of the head, long, robust, scabrous, 4-jointed, 1st and 2nd joints subglobose, 3rd the thickest, very long, covered with small tubercles producing hairs, 4th ovate pilose (fig. 4).

Rostrum inflected, extending the whole length of the thorax when at rest (2) : confined at the base by two reticulated membranous plates, more dilated and less produced on the pectus (2 b): 4-jointed, basal joint robust, 2nd long slender, 3rd rather shorter than the 4th which is lanceolate and as long as the first (2).

Labrum short, tongue-shaped, grooved (3).

Mandibles and *Maxillæ* like setæ passing through the rostrum or labium.

Head *small, trigonate* 4-*spined.* Eyes *lateral.* Ocelli *none.* Thorax *transverse, reticulated, margins dilated, transparent, inflated in the centre of the anterior margin, having* 3 *carinæ down the back and produced posteriorly in the form of a scutellum.* Body *depressed.* Elytra *transparent, reticulated, having two strong nervures in the middle of each forming an ellipsis.* Wings *ample, having* 2 *longitudinal nervures united near the middle by an oblique one* (9 a). Legs *not long simple.* Tarsi 3-*jointed* (6, *a fore leg*).

Crassicornis *Fallen Mon. Cim. Suec. p.* 38. *n.* 8.

Antennæ black, rough, the 3rd and 4th joints producing rather long spreading hairs, the terminal joint being half the length of the 3rd. Head and eyes black thickly punctured, the spines before the eyes inclining outward, those in the centre contiguous. Thorax slightly ochraceous, nervures brown, transverse, quadrate-ovate, black and deeply punctured in the middle, carinæ very much produced reticulated. Elytra of the same colour, fuscous in the middle, the reticulations being nearly of equal size and strength throughout. Legs ferruginous, thighs blackish in the middle, last joint of tarsi fuscous. Beneath black. Abdomen castaneous.

In the Cabinet of the Author.

The *Tingidæ* are a pretty group, varying considerably in outline and in the form of the antennæ, and will most probably eventually constitute several genera. The 2 species included in our genus *Dictyonota* (in allusion to the reticulated back), possess a strong generic character in the 3rd joint of the antennæ being the thickest, whereas in all the others the terminal one is the most robust, making them more or less clavate: the inflated hood over the head distinguishes it also from many others, but not from *T. spinifrons* of Fallen, figured by Panzer *fasc.* 99. *n.* 19. under the name of *T. cristata.*

That our insect is the *T. crassicornis* of Fallen there is little doubt, although from his not being acquainted with the other species, his description will in a great measure apply to both. I have only seen one specimen, which I found under a stone in a meadow near Bognor, Sussex, the beginning of August; from which the annexed figure was taken.

The other species appears to be the *T. Eryngii* of Latreille. It was taken in some abuudance in July upon furze bushes (*Ulex*), by Mr. Carpenter; and although with the assistance of a glass many characters present themselves, yet as there is a strong resemblance, we cannot perhaps employ ourselves more usefully than by subjoining the characters.

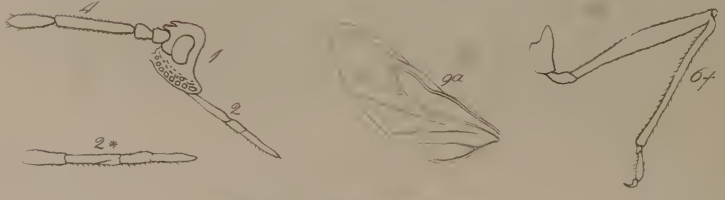
Dictyonota Eryngii *Lat. Hist. Nat. v.* 12. *p.* 253. *n.* 6.

Antennæ black, scabrous, 2nd and 3rd joints producing short hairs, terminal joint small ovate (*f.* 4.) Head and eyes black punctured, 2 short, elevated ochraceous lines behind the eyes (a), lateral spines parallel; central spines distant, pale at the apex (2.) Thorax narrowed anteriorly, slightly ochraceous, nervures fuscous, indistinct upon the posterior process; centre brown and ochraceous, minutely punctured, 3 carinæ down the back, not reticulated. Elytra slightly ochraceous, reticulations much smaller and less distinct towards the middle, the space formed by the union of the 2 nervures in the middle, not extending more than half their length. Legs black, tibiæ and apex of thighs ferruginous. Beneath black.

The plant is *Samolus Valerandi* (Brookweed).

Tab 1





Published by J. Curtis, May 1, 1834

741.

TINGIS OXYACANTHÆ.

ORDER Hemiptera. FAM. Cimicidæ.

Type of the Genus, Cimex Cardui *Linn.*

TINGIS *Fab., Fall., Lap., Curt.*—Acanthia *Fab., Wolff.*—Catoplatus *Spin.*—Monanthia *Lepel. et Serv., Hahn.*—Cimex *Linn.*

Antennæ inserted in front of the head, before the eyes, not remote, generally shorter than the thorax, clavate, pubescent and 4-jointed, basal joint short, pear-shaped, 2nd shorter, obovate, 3rd very long, linear or a little clavate, 4th much shorter, stouter, elliptic-ovate (4).

Labrum short and concealed.

Mandibles and *Maxillæ* setiform.

Labium about the length of the antennæ, almost reaching the hinder coxæ, inserted in a deep channel under the head (2), rather slender and 4-jointed, basal joint the stoutest, elongated, 2nd the longest, 3rd the shortest, 4th as long as the 1st, the apex slightly conical (2*).

Body *depressed, surrounded by a membranous margin.* Head *small, subtrigonate, with* 2 *vertical plates beneath, forming a large channel for the rostrum* (1 *the profile*) *:* eyes *prominent, lateral, subovate, granulated ;* ocelli *none.* Thorax *trigonate-ovate, narrowed and slightly hood-shaped before, the sides with dilated margins,* 3 *ridges down the back ; the hinder portion scutiform and triangular concealing the* scutel. Elytra *entirely coriaceous, reticulated, subelliptic with an elevated nervure forming an ovate-lanceolate space on the disc, margins inflected :* wings *ample, with a few longitudinal and one oblique nervure* (9 *a*). Abdomen *entirely concealed.* Legs *simple and rather short :* thighs *long, slender at the base :* tibiæ *slender, hinder waved* (6†) *:* tarsi *short, biarticulate, basal joint very small,* 2*nd long and clavate :* claws *bent.*

OXYACANTHÆ *Curt. Guide, Gen.* 1087, 8.

Ochreous with darker clouds : antennæ fulvous, 4th joint black, excepting the base : head black with a cleft spine in front and 3 short ridges on the crown, ochreous : thorax punctured, with a narrow hood before to receive the head, with a small black space behind, the centre much dilated and gibbose ; hinder portion very much elongated and triangular ; 3 parallel carinæ down the back, central one the longest, with a black spot on the disc : sides rounded, incrassated, forming a broad margin, with large nearly circular reticulations or pits : elytra dilated at the middle, pitted, becoming reticulated at the apex, which is brownish, as well as a band across the centre, the oblique lines dividing the membrane elevated and united to 2 others parallel to the margin, which has large reticulations and is diaphanous, excepting where the brown bar crosses : legs ferruginous, tips of tarsi black : underside variegated with black.

In the Cabinets of Mr. Dale and the Author.

Fabricius established the genus Tingis in the Systema Rhyngotorum, where he describes *Cardui* as the type, for which reason I gave the name of Galeatus to the group with a large hood and lobes to the thorax; it therefore appears to me that the name Monanthia, imposed by Lepeltier and adopted by Hahn, must fall.

Some of these insects are found upon thistles and flowers in abundance, and they always seem stiff and sluggish when disturbed.

* *Hinder portion of scutel subtrigonate but not elongated.*

1. pusilla *Fall.—Hahn, pl.* 118. *f.* 373. *& pl.* 129 F.
 I found several in September under a clod of earth in a field near Wallpan Chine in the Isle of Wight.
2. carinata *Panz. fasc.* 99. *pl.* 20?
 Recorded as British.
3. cervina *Hahn*, 118. 375?
 Mr. Lyell gave me a specimen from Kinnordy.
4. cassidea *Fall. Mon. p.* 37. No. 6.
 Taken by Mr. Dale.
5. parvula *Fall.* 37. 5.
 Said to have been taken near London as well as the following.
6. nigrina *Fall.*?—*Hahn, pl.* 125. *G.—Panz.* 118. 6.

** *Hinder portion of scutel triangular and elongated.*

7. ampliata *Hahn, pl.* 127. *f.* 397 *a.*
 Taken by Mr. W. W. Saunders under bark in Wimbledon Park.
8. Cardui *Linn.—Panz.* 3. 24. *De Geer, v.* 3. *pl.* 16. *f.* 1.
 June to September, abundant on thistles in Scotland and England.
9. Humuli *Fab.*—convergens *Hahn, pl.* 114. *f.* 361?
 On grass in fields, and on other plants near Hastings.
10. costata *Fab.*?—*Hahn. pl.* 123. *f.* 390.
 Recorded as British.
11. Oxyacanthæ *Curt. B. E. pl.* 741.
 The only specimens I have seen were taken by myself off Whitethorn bushes near Glanville's Wootton the middle of May. Hahn's *M. dumetorum* may prove to be a variety of my insect, but it is very much darker than any of my specimens.
12. quadrimaculata *Wolff, pl.* 13. *f.* 127.—corticea *Pz.* 118.22.
 Upon apple trees, Glanville's Wootton, the middle of October.—J. C.

The plant is *Onopordum Acanthium*, Cotton Thistle.



Published by J. Curtis Sept. 1. 1828

ARADUS CORTICALIS.

ORDER Hemiptera. FAM. Cimicidæ *Lat.*, *Leach.*

Type of the Genus Cimex Betulæ *Linn.*

ARADUS *Fab., Panz., Lat.*—Acanthia *Fab., Wolff.*—Coreus *Schell.*—Cimex *Linn., DeG., Geoff., Stew.*

Antennæ inserted considerably before the eyes, at the acuminated angles of the head, porrected, 4-jointed, basal joint minute, 2nd the longest, 4th oval, slightly pilose (4).

Rostrum inflected, longer than the head (2); 4-jointed, basal joint small, 2nd and 3rd long, of equal length, 4th much shorter (2*).

Mandibles and *Maxillæ* very long and slender, like setæ.

Head *elongate subtrigonate, produced in the centre, the anterior angles acuminated.* Eyes *small and very prominent.* Neck *generally concealed* (1, *the head in profile*). Thorax *transverse, emarginate at the base.* Scutellum *elongate trigonate, obtuse.* Abdomen *very much depressed, hollow above, ovate, the margin broad and thin.* Elytra *when at rest covering only the centre of the abdomen, coriaceous, membranous at the apex, nervures very strong.* Wings *small.* Legs *very short.* Thighs *and* Tibiæ *simple.* Tarsi *short, biarticulate, basal joint minute.* Claws *simple* (6, *a fore leg*).

Obs. *The dissections are from* A. depressus *Fab.*

CORTICALIS *Linn. Faun. Suec. p.* 247. *n.* 917?

Scabrous, brown variegated with ochre. Antennæ with the terminal half of the 3rd joint ochraceous, the apex of the 4th white. Head trilobed, the central one long and obtuse, the lateral short and acuminated. Thorax subcordate-truncate, the sides serrated, 4 ridges on the back and an elevation on each side dull ochraceous. Scutellum slightly concave. Abdomen dark brown, the margins of the segments pale and dull castaneous, elytra ochreous at the base, variegated with brown and fuscous at the apex. Legs ochraceous, clouded with fuscous. Beneath dull castaneous.

In the Cabinet of Mr. Dale.

Aradus may be at once separated from the Tingidæ by the greater length of the second joint of the antennæ, by the elytra not covering the abdomen, by the tarsi of two joints, &c.; and from Aneurus (fol. 86), by the shortness of the terminal joint of the antennæ, the strong nervures, slender rostrum, &c.

From their depressed form it is most likely that, like Aneurus, they reside under the bark of trees; and from their variegated and plain colours they are not easily detected: but as they never occur I believe in any abundance in this country, their economy is not well known.

The genus has never before been recorded as British, although Stewart in his "Elements" mentions some of the species. The following are inhabitants of this Island.

1. A. depressus *Fab. Wolff. tab.* 13. *f.* 123.

This is the most common of the species; I have found it twice at Darent Wood, Kent: it is a very sluggish insect.

2. A. corticalis? *Linn.—Curtis Brit. Ent. pl.* 230.

Mr. Dale thinks he took the female figured at Hurne, in Hampshire.

Although Linnæus does not notice the pale termination of the third and fourth joints of the antennæ, nor has Wolff represented them, I am disposed to think that they are subject to vary in this respect, or it may be a sexual mark; and whether Schellenberg's *Coreus spiniger* be allied to this or to *A. depressus*, I cannot ascertain, not having the work.

3. A. Betulæ *Linn.—DeG.* 3. *t.* 15. *f.* 16, 17.

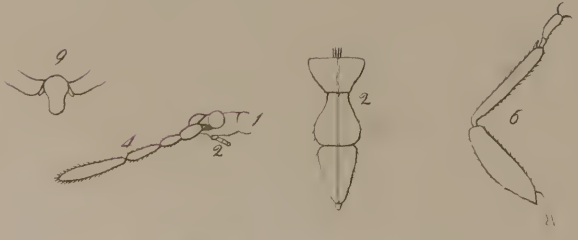
Found on the Birch.

The plant is *Orchis mascula* (Early Orchis).



J. Marshall del. et lith.

Barbarea vulgaris
(Erysimum barbarea)



Published by Marshall, London, Sept. 1. 1825

86.

ANEURUS LÆVIS.

Order Hemiptera. Fam. Cimicidæ *Lat., Leach.*

Type of the Genus Aradus lævis *Fab.*

Aneurus *Nob.* Acanthia *Fab.* Aradus *Fab., Lat.*

Antennæ inserted before the eyes, near the anterior angles of the head, pubescent towards the apex, 4-jointed, 1st joint short oval, 2nd of same length but less robust, 3rd joint rather longer, 4th long, clavate (f. 4).

Rostrum robust, inflected, shorter than the head, 4-jointed, 1st joint broad, short, 2nd pear-shaped, 3rd somewhat obovate, 4th very minute (2).

Mandibles and *Maxillæ* very long, like setæ passing through the rostrum.

Head *trigonate, angles acute, anterior margin produced in the centre, acuminate.* Eyes *not very prominent.* Neck *distinct.* Thorax *narrowed before.* Scutellum *semiorbicular.* Abdomen *very depressed, margined, entire, apex more produced in the males than in the females* (9). Elytra *when at rest covering only the centre of the abdomen, without nerves, scarcely coriaceous, margins membranaceous.* Wings *very small.* Legs *very short.* Thighs *and* Tibiæ *simple.* Tarsi *short, 2-jointed? basal joint minute* (6, *a fore leg*).

Lævis *Fab. Ent. Syst. v.* 4. *p.* 73. *n.* 25.

Ferruginous, granulated. Head, thorax, and scutellum black, excepting the acuminated lobe of the former and the posterior angles of the thorax, which are ferruginous. Abdomen granulated, with a row of spots down the margins, a line down the centre and one down each side of the body shining. Elytra fuscous, rather rough, shining, ferruginous at the base. Superior margin dull white. Wings dirty white.

In the Author's and other Cabinets.

Upon an examination of our insect, it was found to be so very different in structure to *Aradus*, that it was impossible to include it in that genus, which has the 2nd joint of the antennæ the longest, a rostrum longer than the head, an elongated

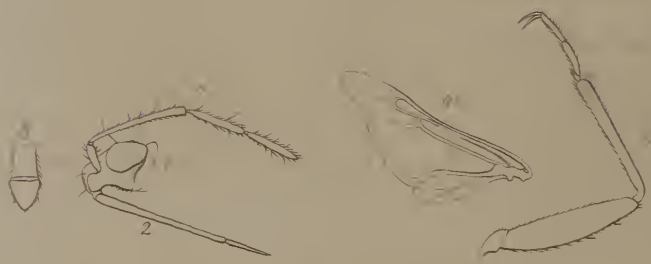
triangular scutellum, and elytra with very strong nerves. These characters will be found, upon a comparison with our description and drawing, to be totally different from those which *Aneurus* exhibits; this name implies the absence of nervures in the elytra and wings.

Aneurus lævis is a Fabrician species, described by that author as British, from the cabinet of the late Sir Joseph Banks. I am not aware that it has been before figured; and from Latreille never having seen it, we may presume that it is very rare upon the Continent. In economy it resembles the *Aradi*, living under bark, for which its form is peculiarly adapted, the flatness of its body and the shortness of its legs enabling it to lie very close; and this will account for the remarkably short rostrum, which is no less well adapted for its particular habits of life,—the extraction of nutrition from the internal covering of trees. From the number I met with the end of August 1822, they appear to be gregarious; they were concealed beneath the loose bark of a fir-pole that was laid across a brook, near Parley Heath, Hampshire. The males are smaller than the females.

The plant is *Erysimum Barbarea* (Winter Cresses, or Rocket).

" Gilbert White Hamp. Flora Jany, p. 28




2

548.

ACANTHIA PULCHELLA.

ORDER Hemiptera. FAM. Acanthiidæ.

Type of the Genus, Cimex littoralis *Linn.*

ACANTHIA *Schr., Lat., Fab., DeLap., Curt.*—Salda *Fab.*—Lygæus *Wolff.*—Cimex *Linn., DeGeer.*

Antennæ inserted on each side the nose before the eyes, half the length of the body, cylindric, pubescent, pilose and 7-jointed, basal joint elongated and a little the stoutest, 2nd ring-shaped, 3rd very long, 4th and 6th minute globose, 5th and 7th longer than the 1st, the latter a little the shortest (4).

Rostrum inserted beneath the clypeus.

Labrum subtrigonate and very pubescent (3).

Mandibles and *Maxillæ* capillary, received into and passing through the

Labium, which is as long as the antennæ, inflected beneath the breast, straight, slender, attenuated and 3-jointed, basal joint very short, 2nd very long and stout at the base, 3rd very much shorter, slender and pointed (2).

Head *subtrigonate, narrowed before forming an oblong clypeus:* eyes *large, lateral and very prominent:* ocelli 2, *approximating on the crown of the head.* Thorax *short, trapezate divided by a transverse line, emarginate at the base, the angles being slightly lobed:* scutellum *large and triangular with a transverse impression.* Elytra *very ample and generally a little convex, completely concealing the abdomen, the apex submembranous with a few longitudinal nervures.* Wings *small, elongate trigonate with a few nervures* (9 *i*). Abdomen *ovate terminated by* 3 *lobes and* 2 *valves in the female?* Legs *short, hinder pair longer, adapted for leaping:* tibiæ *spiny, posterior very long:* tarsi *slender, short and triarticulate, basal joint small, 2nd and 3rd elongated, the latter a little shorter in the hinder pair:* claws *long, slender and acute* (6, *a fore leg*).

PULCHELLA.—*Curt. MSS. Guide, Gen.* 1094.

In the Cabinets of Mr. Dale and the Author.

THESE insects, together with their larvæ and pupæ, are very abundant on the borders of rivers, lakes, and ponds, as well as on the sea-shore, where they inhabit the *Zostera* and rejectamenta. In fine weather they are extremely active, running with great speed, and jumping with astonishing agility; but in dull days they lie concealed in the cracks of the mud, under stones, &c.

The little attention that has been paid to this genus renders it impossible to determine the species with accuracy, but to those that appear to be undescribed I shall add short descriptions.

6. A. pilosa *Fall.—Ahr.* 10. 15. June 30th running over the muddy shores at Broughton, Lancashire, J. C.; Burnham, Norfolk; and Sandwich, Kent.

9. bicolor *Curt.* Length 2 lines: pale ochreous, antennæ brown, excepting 3 basal joints; rostrum and tips of tarsi piceous; head, excepting the clypeus, disc of thorax and scutellum, excepting 2 spots near the apex, black; abdomen beneath black; thighs with 2 dark lines on the inside towards the apex.

July near Portland Castle, J. C. Dale, Esq.; and end of October near Poole, J. C.

11. pulchella *Curt. Brit. Ent. pl.* 548. Whitish-ochre, similar to No. 9, but the scutellum is entirely black; each elytron has an oblique piceous stripe, interrupted and forming 4 irregular spots, with a sublunulate one across the suture at the base of the membrane, the nervures of which are brown.

Isthmus of Portland, Mr. Dale.

1. littoralis *Linn.*—*DeG.* 3. *pl.* 14. *f.* 17. 18.—Zosteræ *Fab.*—flavipes *Fab.* var.

10th June under rejectamenta on the sands of Wareham harbour; 11th July under Fuci, sea-shore, Holywood, A. H. Haliday, Esq.; August, salt marshes, Pool Harbour, and Whittlesea Mere.

12. Scotica *Curt.* Length 2¼ to 2⅔ lines: black, labrum, 2 spots on clypeus and inside of basal joint of antennæ yellow in the male: elytra with 8 ochreous spots on each, 3 being at the base of the membrane which is ochreous, black at the base with brown nervures and indistinct spots between them: thighs beneath and at the apex ochreous as well as a ring near the apex of the tibiæ and the basal joint of the tarsi.

August and September, Isle of Bute and Cartland Craigs.

13. dimidiata *Curt.* 2½ lines: black; inside of basal joint of antennæ and apex of 3rd ochreous, nasus and labrum spotted with same colour: elytra ochreous mottled with brown, the base, a stripe on each side scutellum, and 3 spots along the costa black, membrane whitish margined and spotted with fuscous, legs ochreous, thighs striped beneath with black, base and tips of tibiæ and apex of tarsi black.

10th June, muddy places, Wareham.

14. stellata *Curt.* 1¾ line: black, margin of clypeus, nasus, labrum and inside of basal joint of antennæ yellow: elytra with 7 or 8 transparent dots and a large yellow spot towards the middle of the costa bearing a dark dot; membrane brown with one black spot and a line of transparent ones round the margin: legs ochreous, thighs with a broad black stripe beneath: tibiæ black with a yellow ring near the apex, joints of tarsi tipped with black.

10th June, Wareham; 12th August and middle of September, base and face of cliff where it was wet, at Black-gang Chine.

4. saltatoria *Linn.*—*Wolff. pl.* 8. *f.* 74.—maculata *Lat.* Under flower-pots in Mr. Dale's garden, &c.

3. pallipes *Fab.?*—5. striata *Fab.?*—7. lateralis *Fall.*—8. elegantula *Fall.*

17. marginalis *Fall.* Thighs black except at the base and apex.

July to October, wet sandy and boggy places on the heath by Lewell plantation, Dorset, Mr. Dale.

10. Cocksii *Curt.*—marginalis *Ahr.* 10. 16. Is distinguished by its more elongate form, the first 2 joints of antennæ are ochreous, except at the base, the 2 terminal ones are broader and the legs ochreous.

Mr. Cocks of High Bickington first sent me a specimen of this pretty insect, which I have named after him; Mr. Dale has captured it in June on Parley Heath and on the shores of Wareham harbour, where I also met with it as well as on the banks of the river at Vaucluse in July.

The Plant is *Glaux maritima* (Black Salt-wort).



569.

CIMEX LECTULARIUS.

The House- or Bed-bug.

ORDER Hemiptera. FAM. Cimicidæ.

Type of the Genus, Cimex lectularius *Linn.*

CIMEX *Linn., DeGeer, Curt.*—Acanthia *Fab., Wolff.*

Antennæ inserted before the eyes, as long as the thorax, hairy and 4-jointed, two basal joints stout, 1st oblong, 2nd very long, 3rd and 4th slender, the former linear and longer than the 2nd, 4th not so long, a little thickened and conical at the apex (4).

Rostrum inflected beneath the breast, and extending to the anterior coxæ.

Labrum broad, short, subovate, trigonate and ciliated (3).

Mandibles and *Maxillæ* inclosed in the labium, the former compressed at the base.

Labium rather stout, hairy and triarticulate, basal joint long, broadest at the base, contracted before the middle, 2nd the shortest, somewhat oblong, 3rd a little longer but more slender (2).

Female *larger and more elongated than the male.* Head *subquadrate:* clypeus *narrowed, porrected and subovate:* eyes *small, lateral, prominent and granulated, slightly raised from the head and remote from the base:* ocelli *none.* Thorax *transverse, sublunate, the anterior angles being large, produced, rounded and ciliated, the base nearly straight:* scutellum *large transverse and pointed.* Elytra *transverse, meeting at the centre, small, hairy and shaped like the valve of some shells* (9). Wings *none.* Abdomen *depressed, nearly orbicular in the male, more ovate and convex in the female, the apex slightly pointed.* Legs *with the coxæ approximating:* thighs *stouter than the* tibiæ, *which are simple and nearly linear, posterior the longest, all having a short spine at the apex:* tarsi *triarticulate, basal joint small, 2nd longer, 3rd the longest:* claws *strong and acute* (6, *a fore leg*).

LECTULARIUS *Linn.*—*Curt. Guide, Gen.* 1093. 1.

Punctured, pubescent, ferruginous-ochre: eyes black: thorax with the sides reflexed: abdomen more ferruginous, the apex black, as well as a spot coloured by the intestines; tips of tarsi sometimes fuscous.

STEWART says, "The bed-bug is unhappily but too well known, and was an inhabitant of Europe prior to the Christian æra; at least it is mentioned by Aristophanes and other Greek writers. Southall says it was hardly known in London before 1670, but there is good authority for asserting, that it was common enough there before the great fire in 1666."

No insect in England causes more uneasiness to the housekeeper than this loathsome insect, yet there are few dwellings

in London that are entirely free from them, and they are gradually finding their way, by the constant traffic going on, into every city and town in England. To prevent their emigration is impossible, for although they are fortunately destitute of the organs of flight, a trunk or great-coat remaining one night in an infested room may harbour enough to stock a whole house; and they have even been observed in vast numbers coming out of the cracks of Canada timber employed in the structure of new houses. As every one may be subject to this annoyance, nothing would be more acceptable than a remedy, and perhaps the easiest and most effectual is extreme cleanliness and constant vigilance: if a bed-room, for instance, be infected, all chinks in the wall should be carefully stopped with plaster of Paris, the ceiling washed with lime, and the floor scrubbed with hot water and soap; every nail-hole and crack in the bedstead must be filled with putty, and after being taken to pieces and well scrubbed, it ought to be washed, when dry, with spirits of turpentine, or a solution of corrosive sublimate, which has not so unpleasant a scent as the turpentine, and is, I think, even more efficacious; and the skirting-boards and even the walls may be washed with this solution without detriment, except where there are metallic mouldings. In travelling, particularly abroad, I have freed myself from these persecuting animals and obtained a good night's rest, by sprinkling the sheets with spirits of turpentine before going to bed.

The House-bug makes its appearance with the first warm days of spring, and is found during the summer months. As soon as it is hatched from the egg it can run about, and is then so transparent that the blood can be distinctly seen through the abdomen; after becoming pupæ there is little difference in their appearance except in size and colour, and in their perfect state they very much resemble the pupæ. I have some idea that in the last state, the males do not suck the blood of man, and if I am not very much mistaken the Bug frequently turns his rostrum over his head as represented at fig. 1. p, when he feeds, in which case he cannot well pierce the object he stands upon. It is also a remarkable quality that many of the Cimicidæ possess, of communicating an offensive odour when touched. Bugs are very active at night, but they secrete themselves during the day; they can live a very long period without nourishment, and DeGeer observed that they occasionally fed upon each other: we learn also from Latreille that they torment the young of pigeons, swallows, &c., but that which lives on the latter birds forms a distinct species.

The Plant is *Erysimum Alliaria* or *Alliaria officinalis* (Sauce-alone, or Jack by the Hedge).




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684.

PROSTEMMA GUTTULA.

ORDER Hemiptera. FAM. Reduviidæ.

Type of the Genus, Reduvius Guttula *Fab.*

PROSTEMMA *DeLap.*—Postemma *Dufour.*—Reduvius *Fab.*—Nabis *Lat., Hahn.*

Antennæ attached to little shoulders on each side of the clypeus, before the eyes, not longer than the head and thorax, very slender, hairy, pilose, and 5-jointed, basal joint elongated, linear and naked, 2nd short and somewhat pear-shaped, 3rd very long and clavate, 4th as long but slender, as well as the 5th, which is shorter (4).

Labium scarcely longer than the head, stout, attenuated and triarticulate, basal joint elongated, slightly narrowed at the base, 2nd longer and attenuated, 3rd short and pointed (2).

Rostrum *a little longer than the head, stout, tapering and incurved:* head *small, narrowed at the base behind the eyes, and forming a short collar;* clypeus *narrowed:* eyes *remote, large, prominent and hemispherical:* ocelli 2, *very minute, placed near to the eyes on the crown of the head, but towards the base* (1 *front view of head,* 1* *the profile*). Thorax *trapezate, convex, twice as broad as the head before, much broader behind, with a transverse suture, the base nearly straight:* scutellum *rather large and triangular.* Elytra *often rudimentary with no wings.* Abdomen *much broader than the thorax and nearly thrice as long, ovate, convex, the margins reflexed.* Legs *rather short and stout, anterior the shortest and raptorious, hinder the longest:* thighs *thick, anterior incrassated, with a double series of short thick spines beneath, except at the base and apex:* tibiæ *stout, anterior concave and spiny inside, dilated at the apex, which is truncated obliquely, very fleshy and forming a hollow lobe, on the inside of which are inserted the* tarsi, *which are triarticulate, basal joint the smallest, truncated obliquely:* 2nd *elongated,* 3rd *a little the longest:* claws *rather long slender and simple* (6, *a fore leg*), *the intermediate* tibiæ *have an ovate lobe at the apex beneath the tarsi, and the hinder pair is simple.*

GUTTULA *Fab.*—*Panz,* 101. 21.—*Curt. Guide, Gen.* 1095[b].—brachelytrum *Dufour Ann. de la Soc. Ent. de France.*—staphylinus *Gmel.* 4. 2200. 688?

Female bright shining black, with long hairs; 3 basal joints of antennæ pale ferruginous, except at the apex; head and thorax very smooth and greenish, especially the latter; elytra very short, opake red, with a few punctured striæ, hinder edge whitish; a cordiform spot on the suture, an interrupted line close to the hinder margin and the scutel velvety-black: abdomen deep bluish, thickly punctured, especially towards the base: legs bright red, coxæ black, trochanters and anterior tibiæ ochreous, all the tibiæ piceous at the apex, tarsi dull ochreous.

Winged specimens bluish-black, legs red, elytra scarlet to the centre and along the costa to the stigma, where there is a white spot, a black spot behind the scutel and a white one below it.

In the Author's Cabinet.

M. De Laporte first distinguished this genus from the other Reduvii by its 5-jointed antennæ, and ocelli placed *before* the eyes at the base of the rostrum; but after a revision of his Essay, he remodelled his synoptic table and gave the following characters: "Anterior thighs dilated in the middle: antennæ with not more than 5 joints: anterior thighs without spines: eyes ordinary: 2nd joint of antennæ not sensibly thicker than the last: transverse channel of thorax placed behind: hemelytra short." As it is evident that the ocelli are placed *between* the eyes, and that the anterior thighs are *spiny*, the above definitions are defective. Not having studied the exotic Reduvii sufficiently, I am unable to give proper essential characters to this group; but Prostemma appears to be distinguished from the other British genera by the length of the basal, and the shortness of the 2nd joints of the antennæ, by the spiny anterior thighs and the peculiar form of the anterior tibiæ, which are furnished with a large fleshy sucker at the apex, adapted to prehension. There may possibly be minute annulets at the base of the 2 terminal joints of the antennæ, but for want of a specimen to dissect I have not been able to determine that point.

This beautiful insect was discovered last September on the sand hills near Sandwich, by my friend Mr. A. Kennedy, who very kindly presented me with his only specimen. Mons. Dufour at first considered this to be an undescribed species, but he now agrees with the Count de Castelnau in thinking it is an apterous example of *R. Guttula*, Fab. Latreille says it is found in the neighbourhood of Paris, sometimes in houses (brought in possibly with the fuel), and that it is rarely found winged. M. Dufour has taken it not uncommonly in the environs of Saint Sever as well as in Spain, under stones or knots of dry plants.

In a recent number we described an insect (Hydroessa pygmæa) found by the same distinguished naturalist in the South of France, which was soon after detected in the north of Ireland by Mr. Haliday, and we now have before us another instance of the insects of the south finding their way in dry seasons to our country; and, on the other hand, in our preceding plate (683.) is an example of a northern insect attracted to the south. *Noctua Solidaginis* is well known as an inhabitant of Lapland and Sweden, but was never detected in England until lately. Such facts are interesting, and ought, I think, to be recorded, intimately connected as they are with the geography of animals.

The Plant is *Lepidium latifolium*, Broad-leaved Dittander, which I found last August near Sandwich, by the road leading to the Sand-hills.


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453.

CORANUS SUBAPTERUS.

ORDER Hemiptera. FAM. Reduviidæ.

Type of the Genus, Reduvius pedestris, *Wolff.*

CORANUS *Curt.*—Reduvius *Wolff., Curt.*

Antennæ inserted in cavities before the eyes, towards the base of the clypeus, remote, filiform, flagellate, pubescent, pilose towards the base, as long as the head and thorax, 8-jointed, basal joint minute, 2nd a little the longest and stoutest, 3rd 5th and 7th minute, 4th and 6th of equal length, not longer united than the apical one, which is shorter than the 2nd (4).

Labrum ovate-conic, pilose, articulated at the middle and terminating in a trigonate lobe (3).

Rostrum as long as the head, and received into a groove beneath it, curved, attenuated, very horny and naked, triarticulate, 2nd joint a little longer than the 1st, 3rd only half the length and elongate-conic (2).

Mandibles and *Maxillæ* setiform.

Head *subovate:* eyes *small globose and remote:* ocelli 2, *minute, remote and placed behind the eyes.* Thorax *subtrigonate truncate, the angles rounded, with a transverse suture at the middle, the anterior portion being gibbose:* scutellum *small subtrigonate.* Abdomen *considerably broader than the thorax elongate ovate, concave above, the sides being elevated, very convex beneath.* Elytra *very small, the apex and internal margin membranous, with a few nervures* (9) : wings *smaller and membranous* (*). Legs, *posterior the longest:* thighs, *four anterior robust:* tibiæ *simple:* tarsi *triarticulate, basal joint the smallest sometimes concealed by the apex of the tibiæ, 3rd joint the longest in the hinder pair.* Claws *and* Pulvilli *small and simple* (6, *a fore leg*).

SUBAPTERUS *De Geer?—Curt. Guide, Gen.* 1096, 1.—pedestris *Wolff.*

Black with a rosy tinge, clothed with minute depressed yellowish pubescence: eyes black: antennæ and legs pilose, the former pale castaneous variegated with fuscous: head with a transverse semicircular impression between the eyes, the margins of which and a line down the hinder part are dull pink: thorax with several black spots on the anterior portion, with a blackish streak on each side behind: scutellum elevated at the apex, with a pale ridge down the centre: elytra with the tips glossy and bronzed: abdomen with a line of black spots down each side of the back, the margin spotted with ochre: legs dull ferruginous spotted or banded with fuscous or black, especially the thighs.

In the Author's and other Cabinets.

I FOUND several specimens of *C. subapterus* on the sand hills at Pegwell Bay the middle of October; they had a peculiar scent resembling that of mellow apples, I think; some were running about, others lying quite still watching (like a cat for a mouse) apparently for flies on which the larvæ feed, and

many of them were paired. Mr. Dale has taken it near Sir George Rose's plantations at Mudeford, Hants, and Mr. Streatfield at Almer.

I believe this insect to be the *C. subapterus* of De Geer, but there has been so much confusion between this and the *R. apterus* of Fab. which is probably a Nabis, that I am somewhat doubtful about it: from Wolff's description I am pretty certain that it is the same as his *R. pedestris*, but his figure is not a good one. The number of joints in the antennæ and their form, together with the situation of the eyes and the size of the ocelli, and lastly the imperfect elytra and wings, are so very different to those of Reduvius that I have been obliged to form a new genus for our insect, but as I shall not illustrate the type of the family it will be as well to give the characters of

Reduvius *Fab., Lat., Curt.*

Antennæ twice as long as the head and thorax, setaceous, 4-jointed, basal joint short, 2nd long subclavate, 3rd twice as long as the 2nd and slender, 4th as long as the others united and very slender. *Rostrum* short stout and curved beneath the *Head* which is small; neck distinct. *Eyes* large ovate and not remote either above or beneath. *Ocelli* 2, large and prominent, close to the hinder margin of the eyes. *Thorax* trapezoid, anterior portion gibbose with a transverse suture. *Scutellum* rather large, trigonate and very acute. *Abdomen* very long, somewhat elliptic-oval. *Elytra* ample subcoriaceous. *Wings* ample, both having nervures. *Legs* similar to those of *Coranus*.

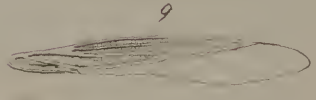
Personatus *Linn.*—*Schæf. Icon. tab.* 13. *f.* 6. 7.—anulata *Har. Ex. t.* 26. *f.* 5.

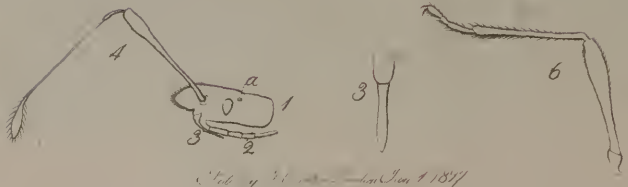
Length 8 lines: pale piceous brown, inclining to castaneous, hirsute, head and anterior portion of thorax blackish, antennæ rostrum and ocelli dark and dull ochreous: thorax with a deep channel down the middle, and one on each side the posterior portion, which is rugose-punctate; scutellum of similar texture, with an elevated line parallel to the sides, uniting and extending to the apex: elytra yellowish brown at the costa, with a short oblique white line at the middle: wings transparent and iridescent: abdomen ochreous at the disc: legs slightly clouded, base of tibiæ dull yellow.

It is said to be very fond of and to live upon the Housebug; it is also found on paling in May, in houses at Gravesend the end of June, and Mr. C. J. Paget informs me that they are attracted by a candle in summer evenings, when they are on the wing.

The Plant is *Atriplex portulacoides* (Shrubby Orache or Sea Purslane).




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150.

NEIDES ELEGANS.

Order Hemiptera. Fam. Coreidæ *Leach.* Corisiæ *Lat.*

Type of the Genus Cimex tipularius *Linn.*

Neides *Lat.* Berytus *Fab., Wolff., Leach.* Gerris *Fab.* Cimex *Linn.*

Antennæ inserted laterally, considerably before the eyes, long, geniculated, 4-jointed, slightly pubescent, basal joint long capitate, 2nd short, slender, 3rd long capillary, 4th elongate-ovate, pilose (fig. 4).

Rostrum rather longer than the head, inflected, 4-jointed, pilose, basal joint most robust, terminal joint slender rather the longest (2).

Labrum longer than the basal joint, strap-shaped, not striated (3, 3).

Mandibles and *Maxillæ* like setæ passing through the rostrum.

Head *elongate cylindric produced in front.* Eyes *small ovate lateral.* Ocelli 2, *remote, placed behind the eyes* (1 *a*). Thorax *sub-quadrate, sometimes elongate, carinated.* Abdomen *sublinear, the sides elevated.* Scutellum *minute.* Elytra *long and narrow, with strong elevated nervures at the costa and base, the area reticulated* (9). Wings *small or none, without nervures.* Legs *long and slender, hinder pair very long.* Thighs *clavate.* Tibiæ *simple swelled at their insertion.* Tarsi 3-*jointed, basal joint the longest, 2nd minute.* Claws *simple* (6, a fore leg).

Obs. *The dissections were made from* Berytus clavipes *Fab.*

Elegans *Nob.*

Head black shining, ocelli and neck ochraceous. Thorax ochraceous, with a polished black spot on each side near the anterior margin, and a smaller one at the insertion of the elytra; granulated, slightly glittering, lateral margins angulated, a slight ridge down the centre very much developed and blackish posteriorly. Abdomen black at the base, brown in the middle and fuscous on the sides. Elytra and wings slightly iridescent and rugose, the former with a few nervures only at the costa and base, an elongated brown spot near the apex and a fainter one nearer the middle. Antennæ and legs pale ochre, the former with the basal joint spotted black, the 2nd spotted fuscous, terminal joint black, pubescent. Thighs slightly ferruginous at their apex, spotted black, especially the posterior pair. Tibiæ and tarsi all spotted black, the latter with the terminal joint black.

In the Cabinet of the Author.

These curious and elegant little insects are remarkable for their slender and long legs, especially the hinder pair, and for their clubbed and bent antennæ, which, when alive, they carry something like ants, as represented at fig. 4.

Our insect, from its head being less elongated than in the other species, its elytra having fewer nervures, the ample under wings, and the intermediate joints of the antennæ being of equal length, will form a 2nd division of the genus *Neides*, which name is restored because Latreille employed it in his characters published before Fabricius's *Systema Rhyngotorum* appeared.

We can now enumerate 3 species:

1. N. tipularius *Linn.*, *Wolff. tab.* 20. *f.* 198. Inhabiting grassy places in June and August.
2. clavipes *Fab.* Inhabiting grassy places: not uncommon in Norfolk.
3. elegans *Nob.* Of this pretty insect, which appears to be perfectly new, I found a pair in the North Foreland meadow, Dover, on the 14th August last. The male, which sex is figured, is a little smaller than the female, but varies from it in no other respect: the scutellum, perhaps, may not be quite correctly represented, the pin having passed through both of them.

Asperula cynanchica (Small Woodroof), from the same neighbourhood as the insect, is figured with it.


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701.

MIRIS TRITICI.

ORDER Hemiptera. FAM. Coreidæ.

Type of the Genus, Cimex dolabratus *Linn.*

MIRIS *Fab., Lat., Hahn., Curt.*—Lygæus *Wolff.*—Stenodema *De Lap.*—Lopus *Hahn.*—Cimex *Linn.*

Antennæ as long or longer than the body, inserted before the eyes, towards the base of the clypeus, remote, setaceous, pubescent and 4-jointed, basal joints parallel, stoutest, especially in the female, contracted at the base, longer than the head, 2nd capillary thrice as long, 3rd slender and about half as long as the 2nd, 4th the slenderest, not longer than the 1st (4).

Labrum elongated, tapering, hairy outside (3).

Mandibles and *Maxillæ* very slender.

Labium inflected, reaching to the hinder coxæ, pubescent, 4-jointed, basal joint very stout, not longer than the head, the remainder slender, 2nd as long as the 1st, the others a little shorter, the terminal one tapering at the apex (2).

Head *rhomboidal, small, the front triangular:* eyes *small, lateral, very prominent, ovate:* ocelli *none.* Thorax *elongate-trigonate, being narrowed and truncated before, the base broad with the angles rounded;* scutel *tolerably large and triangular.* Abdomen *flat and margined above, convex beneath with a long suture in the female to receive the ovipositor.* Elytra *not much broader than the base of the thorax, very long and linear, extending beyond the abdomen in the males, sometimes much shorter in the females, nervures few, stigma elongated, a long elliptical cell at the base of the membrane.* Wings *ample in the males, lobed at the base, larger than the elytra, with a large costal cell and 4 simple nervures.* Legs, *hinder very long:* thighs *long, especially the hinder:* tibiæ *as long but slenderer:* tarsi *triarticulate, basal joint the longest and stoutest, 2nd rather shorter than the third:* claws *slender and simple* (6).

TRITICI *Kirby?—Curt. Guide, Gen.* 1099. 8.

Male. Head and thorax sulphureous variegated with slate black, the latter with 2 black stripes divided by a narrow line, with 2 black lines outside inclosing 2 slight tubercles before the middle, scutel slate-colour, with the edges and a line down the middle sulphureous: abdomen slate-black, elytra with the costa sulphureous-green, the interior portion brown, the membrane fuscous: wings iridescent, nervures brown: antennæ ferruginous, fuscous towards the apex, with a blackish stripe outside the basal joint, which is hairy: legs ferruginous-ochre; thighs pale towards the base: tibiæ hairy.

In the Author's and other Cabinets.

MIRIS is distinguished by its long slender setaceous antennæ, with the basal joint elongated, stout and porrected horizontally;

this is stouter in the females, and often very hairy. Miris does not appear to have any ocelli; the Count de Castelnau is therefore mistaken in supposing that *Chorosoma* is allied to it, for the ocelli are very distinct in my genus, and the terminal joint of the antennæ is stouter than the penultimate, so that it cannot belong to his family Astemmites.

The following are British species.

1. pallescens *Don. v.* 3. *pl.* 101. *f.* 5. 6. *and pl.* 102?—Marshami *Turt.*

 June and July, on grass under hedges.

2. holsatus *Fab.—Hahn. pl.* 85. *f.* 256.—albidus *Hahn.* 53. 162.

3. ruficornis *Fall.*—pulchellus *Hahn.* 66. 200.

 End of July and August, Tollsbury, Essex.

4. longicornis *Fall.—Hahn.* 85. 258.

 August, off grass, Sandwich.

4^{b}. virens *Linn.—Hahn. pl.* 54. *f.* 165.—ruficornis *Hahn.*? *pl.* 71. *f.* 220.

5. hortorum *Wolff. pl.* 16. *f.* 154.

 June, Isle of Wight.

6. lævigatus *Linn.—Hahn.* 85. 259. and 53. 161. *var.*?

 Pastures, August and September.

7. erraticus *Linn.—Hahn. pl.* 54. *f.* 163. ♂. 164. ♀.

 September, Blackgang Chine; October, in New England, on the Essex shore in abundance.

8. Tritici *Kirby*?—*Curt. Brit. Ent. pl.* 701. ♂. As it has been sent to me by a friend with this name, I have retained it, although I suspect it is only a variety of *M. erraticus.* I have taken it, the end of July, at Tollsbury.

10. ferrugatus *Fab.—Hahn.* 86. 263. ♂.—dolabratus *Fab.*

 Beginning of June, grass in meadows, Oxford, &c.

11. dolabratus *Linn.*—Lopus *Hahn.* 261. ♂. 262. ♀. and 53. 160. ♂.—lateralis *Wolff. pl.* 11. *f.* 109. ♂.—abbreviatus *Wolff. pl.* 11. *f.* 110. ♀.

 June, on grass in hay-fields round London in abundance; also in August and September: I have taken the male paired with the female of *M. ferrugatus.*

9. picticeps *Curt.* Having now a series of this insect, I am inclined to believe that it is only a pale purplish variety of *M. dolabratus*, with the yellow stripe on the thorax dilated at the base.

 July, Dover; August, Sandwich, off dried grass.

12. calcaratus *Fall.*—dentata *Hahn. pl.* 2. *f.* 8.

 For specimens of *Arabis stricta*, Bristol rock cress, I am indebted to G. H. K. Thwaites, Esq., who found them last April, on St. Vincent's Rocks.


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709.

HARPOCERA BURMEISTERI.

ORDER Coleoptera. FAM. Coreidæ.

Type of the Genus, Harpocera Burmeisteri.

HARPOCERA *Curt.*

Antennæ inserted before and a little below the eyes, shorter than the body, pubescent, 4-jointed, 2 basal joints long and stout in the male (4 ♂), 1st subcylindric, 2nd hatchet-shaped, being dilated beneath near the apex and densely ciliated, 3rd and 4th linear, the former very long, curved and densely hairy beneath near the centre, the latter not half so long, the apex compressed; shorter in the female (4 ♀), basal joint much shorter than in the male, 2nd longer and simply clavate.

Labrum small, lanceolate and pubescent (3).

Mandibles and *Maxillæ* slender filaments (2 *m*).

Labium rather short, not half so long as the antennæ, attenuated, composed of 4 nearly equal joints (2).

Head *small, transverse-ovate;* neck *none:* eyes *lateral, very prominent and ovate:* ocelli *none.* Thorax *trigonate, very narrow and truncated before; the base broad, concave in the middle, the angles rounded:* scutel *much smaller than the thorax, triangular.* Abdomen *soft, the apex compressed and horny in the male, with a ridge beneath in the female, reaching nearly to the base.* Elytra *ample, with a large portion of the apex membranous, with an oval cell and* 2 *longitudinal nervures on the basal portion:* wings *as large, with a long oval costal cell and* 4 *longitudinal nervures* (9). Legs, *hinder the longest:* thighs *compressed, hinder the stoutest:* tibiæ, *anterior long, slender, curved towards the apex in the male* (6), *nearly straight in the female, the others slender, with numerous short spiny bristles, the hinder considerably the longest:* tarsi *short and triarticulate; basal joint the shortest, the others elongated, nearly of equal length:* claws *and* pulvilli *minute.*

BURMEISTERI *Curt. Guide, Gen.* 1105?

In the Author's and other Cabinets.

THIS pretty insect is nearly related to Lygus of Hahn and to my genus Pantilius, from both of which it is distinguished by the shorter 2nd joint, and much longer 3rd joint of the antennæ. The same characters also separate it from Pœcilosoma, which it otherwise very much resembles, which induced

me to locate it close to that genus; and although it seems in that situation to intersect two natural groups, yet it is difficult to find a place where it interferes less with the natural affinities of the allied groups.

It is remarkable that this curious and striking species should never have been figured or described; but it does not appear to be known upon the continent, otherwise Wolff or Panzer would have figured it, and it has not yet been published in any of Hahn's fasciculi in my possession. It is probably the insect called *Azinecera dispar* in Stephens's Catalogue, and as such I marked it in the Guide; but as I have no means of ascertaining that they are identical, I have named it Harpocera, in allusion to the antennæ, which resemble a reaping-hook or sickle, and the specific name is given in honour of Professor Burmeister of Berlin, whose talents are now devoted to the investigation of the Homoptera.

It does not seem to be a rare species, for I have met with it in several localities; in May in Coomb-wood, Surrey, upon grass; on the foliage of oak-trees in the plantations at Arno's Grove, Southgate, in abundance; also in a garden near London, as well as in Bagley-wood or at Shotover near Oxford in July. The following is the description of

H. Burmeisteri *Curt. Brit. Ent.* pl. 709.

Male dark piceous, with short ochreous pubescence; a line down the crown yellow, a broader one on the disc of the thorax not reaching the anterior margin, orange; apex of the scutel orange and yellow, base of abdomen ochreous: antennæ dull pale brown, darkest at the apex: elytra fuscous-ochre a little clouded; stigma piceous, the internal margin whitish; the membrane iridescent and pale fuscous, with a red spot or line at the apex of the cell: thighs orange, hinder piceous, except at the base; tibiæ ochreous, the tips, bristles and tarsi piceous.

Female lighter: head yellow with 2 shining oval black spots on the crown: thorax ochreous, the sides more orange, with 2 transverse oval black rings in front: abdomen entirely ochreous: hinder thighs slightly fuscous only at the apex.

The plant is *Alopecurus pratensis*, Meadow Fox-tail-grass.




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693.

CAPSUS HIRTUS.

Order Hemiptera. Fam. Coreidæ.

Type of the Genus, Capsus Danicus *Fab.*

Capsus *Fab., Lat., Hahn., Curt.*—Lygæus *Wolff.*—Cimex *Linn.*

Antennæ inserted before and close to the eyes, twice as long as the rostrum, pubescent, pilose, geniculated and 4-jointed, basal joint elongate, 2nd very long and clavate, the remainder slender and capillary, articulated at the middle, with one or two other indications of joints or fractures (4).

Labrum about half as long as the basal joint of the labium, broad at the base and attenuated (3).

Mandibles and *Maxillæ* long slender setæ.

Labium incurved and extending to the hinder coxæ; slender, attenuated and 4-jointed, basal joint stout, 2nd a little longer, 3rd scarcely so long, 4th very slender, as long as the 2nd (2).

Head *rhomboidal, the forehead trigonate, neck very short or concealed:* eyes *lateral, very prominent:* ocelli 2, *remote, minute, placed at the base of the head, close to the hinder angles of the eyes* (1 *the head in profile*). Thorax *twice as broad as the head at the base, trigonate, anterior margin truncated, the base convex:* scutel *moderate, triangular.* Elytra *with the costa notched before the stigma, the apex membranous, with* 2 *nervures at the base, united and rounded at the apex* (9). Wings *ample, nearly as long, and broader than the elytra* (*). Abdomen *ovate, very convex beneath, with a long channel in the female, embracing the ovipositor.* Legs *moderate, hinder long:* thighs *simple, hinder the thickest:* tibiæ *slender and linear, hinder the longest:* tarsi *short and triarticulate, terminal joint the longest:* claws *incurved at the base;* pulvilli *minute* (6† *hinder tarsus*).

Hirtus *Curt.*—*Guide, Gen.* 1109 and 1120.

Slate-black, pilose and sparingly clothed with short depressed yellow hairs: antennæ $\frac{2}{3}$ as long as the body, 2nd joint slightly clavate: head as broad as the base of the thorax; neck none: thorax transverse, a little narrowed before: elytra slightly convex, membrane and wings none: hinder legs very long: tips of thighs, excepting the hinder which are very stout, and the tibiæ, ferruginous, base and apex blackish.

In the Author's Cabinet.

The type of the genus Capsus is well characterised by the clavate 2nd joint of the antennæ and the slenderness of those that follow: my genus Chlamydatus is distinguished from Capsus by the antennæ, the 2nd joint being scarcely clavate, by the elytra wanting the membranous apex, and by the absence of the wings. The species figured seems to be so intermediate that I doubt whether it will be necessary to retain the genus; this however will be best ascertained by dissection.

For the present, therefore, I shall give sections for the British species contained in my cabinet.

1. Capsus, with a membrane to the elytra and perfect wings.

* *Neck very narrow.*

1. tricolor *Linn.*—*Wolff. pl.* 4. *f.* 35.
 On nettles in the summer.
2. Danicus *Fab.*—*Wolff.* 4. 34.—*Hahn. pl.* 2. *f.* 9.
 Found also on nettles with the former species.

** *Neck broader.*

3. semiflavus *Linn.*—flavicollis *Fab.*—*Wolff.* 4. 32.—ater *Hahn. pl.* 20. *f.* 65.
 June, sandy places, Isle of Portland; m. July, Dover.
4. ater *Linn.*—*Wolff.* 15. 146. *var.*—tyrannus *Fab. var.*—croceus *Geof. var.*
 May, common in grassy places; June, Darent; August, sand hills, Sandwich.
5. unicolor *Hahn.* 59. 179. A.
 Opake black, with scattered short yellowish hairs: membrane fuscous, iridescent: antennæ short, basal joint elongate, pyriform, 2nd stout fusiform: length $1\frac{3}{4}$ lines.
 Taken near Oxford in July.

2. Chlamydatus, membrane and wings wanting.

6. hirtus *Curt. Brit. Ent. pl.* 693.—saltator *Hahn. pl.* 76. *f.* 236.?
 Whether Hahn's figure be intended for my insect I cannot determine, for he has not indicated the yellow hairs upon it; the hinder thighs are much thicker than in my specimens, the tibiæ are entirely ochreous, and the tarsi are very short.
 I took 3 specimens off grass in dry meadows near Sandwich, the middle of last August.
7. marginatus *Curt.*
 Olive-black, with short ochreous pubescence; head and thorax shining, the former ochreous at the base; elytra with a broad ochreous space at the base and a narrow margin, sometimes all round, of the same colour: abdomen black: hinder legs very long and the thighs very thick; legs ochreous, thighs black, the tips and anterior tibiæ ferruginous: 1 line long.
 Not uncommon on the sand hills at Lowestoft the beginning of June. It resembles the *Cimex grylloides* Linn. in colour, but it is much smaller, and the antennæ are quite different.
8. ochripes *Curt.*—ambulans? *Hahn.* 108. 337. pupa of ♀.
 Shining black, legs pale yellow, tips of tarsi fuscous: 1 line long.
 I took a single specimen during my last visit to the Western Isles of Scotland.

The Plant is *Inula Helenium*, Elecampane, from Ryde in the Isle of Wight, communicated by Dr. Bromfield.






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612.

RHYPAROCHROMUS MACULIPENNIS.

ORDER Hemiptera. FAM. Coreidæ.

Type of the Genus, Lygæus chiragra *Fab.*

RHYPAROCHROMUS *Hahn., Curt.*—Pachymerus *LePel.*—Aphanus *LaPorte.*—Lygæus *Fab., Fall.*—Cimex *Linn.*

Antennæ inserted on each side of the head before the eyes, as long as the head and thorax, filiform, hairy and 4-jointed, basal joint rather short, oblong, 3 following long, nearly of equal length, 2nd and 3rd clavate, the latter sometimes the shortest, 4th a little the longest and fusiform (4).

Labrum as long as the basal joint of the labium, strap-shaped, but slightly attenuated (3).

Mandibles and *Maxillæ* setiform.

Labium as long as the antennæ, stout, inflected and 4-jointed, first 3 joints nearly of equal length, 2nd probably a little the longest, 4th a little the shortest, the apex conical (2).

Head *rather small and trigonate:* eyes *small, prominent, lateral and rather oval:* ocelli 2, *minute and placed close to the base of the head* (1, *the head in profile*). Thorax *long and broad, subcampanulate:* scutel *large trigonate and acute.* Abdomen *elongate-ovate.* Elytra *generally covering the abdomen, horny, with* 2 *or* 3 *indistinct nervures towards the base, and* 5 *imperfect longitudinal ones on the apical membrane* (9). Wings *short and broad, with several furcate nervures.* Legs *short, anterior the shortest:* thighs, *posterior stout, elongate-ovate, with* 1 *or* 2 *strong, and several small spines, beneath:* tibiæ, *intermediate rather the longest, hinder the stoutest, a little clavate, with slender spurs:* tarsi *slender, triarticulate, basal joint the longest, especially in the hinder pair,* 2*nd small,* 3*rd elongate-ovate:* claws *simple* (6, *a fore leg*).

MACULIPENNIS *Curt. Guide, Gen.* 1118. 7.

Black, shining, coarsely thickly and irregularly punctured; thorax campanulate, with a strongly punctured transverse suture towards the base: elytra pale testaceous, with dark punctures and a broad oblique piceous band across the middle; membrane with a large fuscous lunule, leaving the base and a dot at the tip white; wings iridescent, apex of 2 basal joints of antennæ and legs ochreous; anterior thighs inflated, piceous and spined beneath at the apex.

In the Author's Cabinet.

THE following British species vary in the shape of the thorax, some being oblong, others a little transverse, yet it would be difficult to form them into sections.

1. Echii *Fab.*—*Panz.* 72. 22.—carbonarius *Rossi.*—aterrimus *Wolff.* 19. 192.—GENUS Polyacanthus *LaPorte.*

2. micropterus *Curt.* Narrow, black and shining, thorax campanulate, convex, excepting the base which is flat and testaceous as well as the elytra, which are very short, with brown rows of punctures and edged

with white instead of a membrane: coxæ and base of thighs ochreous, anterior inflated but not denticulate: length 1½ line.

August, near Heron Court, Hampshire.

3. maculipennis *Curt. Brit. Ent. pl.* 612. ♀.

The middle of May, Mousehold Heath near Norwich, and Thetford Warren, amongst short grass.

4. chiragra *Fab.* 5. tibialis *Hahn. ?*

6. dimidiatus *Curt.* Testaceous-ochre, thickly punctured; antennæ rather elongated and slender, head, thorax, scutel and pectus piceous, excepting the base of the thorax and margins of the scutel; membrane of elytra pale with the edges and a spot on the middle fuscous: length 2½ lines.

August 16th, on rushes, Blackgang Chine, Isle of Wight.

7. pedestris *Panz.* 92. 14.—luscus *Wolff. ? t.* 14. *f.* 139.

8. decoratus *Hahn.*—affinis *Schill.*

9. podagricus *F.*—pictus *Hahn.*

10. antennatus *Schill. ?—Hahn, t.* 9. *f.* 35.?

11. varius *Wolf.* 15. 142.

12. Rolandri *L.—Wolf.* 19. 193.

13. nubilus *Fal.*—arenarius *L. ?* 14 Pini *L.—Wolf.* 8. 71.

15. lynceus *F.* 16. plebeius *Fal.*

17. sylvestris *L.—Panz.* 92. 10. 18. erraticus *Fab.*

19. sylvaticus *Fab.—Panz.* 93. 16.—agrestis *Fall.*

20. vulgaris *Schill.*—apicalis *Ste. ?*

21. quadratus *F.—Panz.* 92. 11.

22. irroratus *Curt.* Dull black, thorax trigonate-truncate, the base pale ochre, punctured with black, elytra whitish-ochre with numerous black punctures, and a few spots on the disc between the nervures, membrane white with 5 fuscous stripes; rostrum, excepting the base, anterior legs, excepting the thighs, and tips of the other tibiæ and tarsi ferruginous: 2½ lines long.

October, in decayed *willows*, I believe at Southend.

23. obtusus *Curt.* Elongate-ovate, dull black, thickly and strongly punctured, base of thorax and elytra tawny, the latter dark brown on the disc, leaving a few tawny dots; membrane striped with fuscous, leaving the nervures pale: antennæ ferruginous, apical joint thickened and dusky, as well as the 1st; legs subferruginous, thighs more or less piceous: length 1¼ line.

May and June, Lowestoft, Suffolk.

24. pubescens *Curt.* Male smaller than the female: piceous, coarsely punctured, pubescent; angles of thorax and part of the base and elytra dull ferruginous, membrane pale, striped fuscous; legs and antennæ ferruginous-ochre, last joint of the latter thickened and fuscous: length 1¼ line.

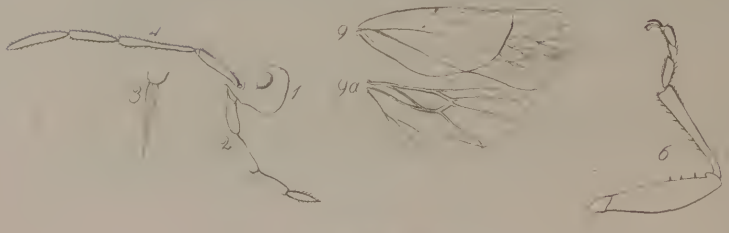
Sept. and Oct., on heath, Coomb Wood and Parley Heath.

25. rusticus *Fall. Mon. Cim. Suec.* 70. 17.

The rare Plant figured, *Trichonema Columnæ*, was kindly communicated by Dr. Bromfield, who gathered it last April on Dawlish Warren.






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465.

PYRRHOCERIS APTERUS.

ORDER Hemiptera. FAM. Coreidæ.

Type of the Genus, Cimex apterus *Linn.*

PYRRHOCERIS *Dal., Fall., Curt.*—Platynotus *Halm.*—Lygæus *Fab., Wolff.*—Cimex *Linn.*

Antennæ more than half the length of the insect, inserted in a shoulder on each side the head before the eyes, slightly clavate, pubescent and 4-jointed, 1st and 4th joints of equal length and a little the stoutest, the former clavate, the latter subfusiform-ovate, 2nd the longest and slenderest, 3rd the shortest, both slightly clavate (4).

Labrum nearly as long as the basal joint of the rostrum, and subulate (3).

Mandibles and *Maxillæ* setiform.

Labium bent under the breast; shorter than the antennæ, rather stout and filiform, 4-jointed, the joints gradually decreasing in length, the terminal one slightly pubescent (2).

Head *subtrigonate narrower than the thorax.* Eyes *remote, globose and very prominent.* Ocelli 2, *very remote?* Thorax *transverse, trapezoid, the base straight, truncated and concave before.* Scutellum *not large, triangular.* Abdomen *oval.* Elytra *considerably shorter than the body* (9), *generally wanting the membranous apex.* Wings *smaller than the elytra with several nervures* (9*a*), *but oftener none.* Legs *simple, posterior the longest:* thighs *and* tibiæ *of equal length, the former having* 3 *minute teeth on the underside, towards the apex in the posterior pair, the latter hairy and bristly on the inside:* tarsi *triarticulate, basal joint considerably the longest in the hinder pair,* 2*nd joint minute,* 3*rd a little longer:* claws *and* pulvilli *distinct* (6, *a fore leg*).

APTERUS *Linn.*—*Curt. Guide, Gen.* 1119. 1.

Elongate-ovate, black, minutely and thickly punctured: antennæ pubescent: thorax sparingly and coarsely punctured, the disc and a band beneath black, leaving a broad scarlet margin: abdomen reddish above, except towards the apex, which is black or fuscous, margined beneath with scarlet, the penultimate joint more so in the male than female: elytra thickly punctured, scarlet, with a broad stripe on each side the scutellum, a small spot near the base of each and a large round one on the disc, black; membrane yellowish brown, blackish at the base; wings brown: coxæ scarlet.

In the Author's and other Cabinets.

THE males are narrower than the females; and it is remarkable, that both sexes are occasionally found with perfect wings: but it seems that climate has a great influence in perfecting them;

for out of a considerable number taken in this country, *I* have never found one with wings; whilst of those I took at Montpellier and the Pont du Gard in the South of France, *several* were winged. The apterous specimens do not differ in colour or size from those that are winged; and many of the former were found in pairs by Mr. Dashwood, jun., of Beccles in Suffolk, on sandy banks in that neighbourhood, the middle of May.

There is another extraordinary incident in the history of this handsome and conspicuous insect: some years these plant-bugs appear in myriads, whilst at other times not one can be found. Many years back it was observed in excessive abundance on some little islands at Torquay in Devonshire, on which, I understood, the Tree Mallow (*Lavatera arborea*) grew; a plant our insect is much attached to, probably from a particular Aphis or larva that infests it. Mr. Abraham, of Exeter, informed Mr. Dale, that the *Pyrrhoceris apterus* was in such profusion on a rock in the sea off Teignmouth, in Devon, that it looked quite red with them; at the same time he observed there was not any vegetation for them to inhabit: and the insects being apterous, it seemed strange how they could have attained such a spot.

The transportation of these insects to an insulated rock in the sea may be easily accounted for, if we suppose a few, or even one pair of winged specimens to have flown there, probably from France; and this would at once show the use of some individuals being furnished with wings, as well as the wisdom of Providence in supplying so few with the means of flight; since, from their astonishing increase, the country might be overrun by them if they were able to disperse rapidly: the means, however, are always adapted to the end; and as the Pyrrhoceris no doubt lives by sucking other insects, it may only be propagated in extraordinary numbers when some Caterpillar or Aphis threatens, by its superabundance, the total annihilation of a local species of plant; and this provision is of such common occurrence, that it is unnecessary to adduce evidence in support of the observation.

In the vegetable kingdom, a scarcity of fruit following a year of abundance, arises from exhaustion; but of course we must look to very different causes amongst animals; and with regard to the Pyrrhoceris, its sudden disappearance may arise from its conspicuous colouring, which could not fail to attract the notice of birds in an exposed situation, especially when they covered a spot so completely as to give even a red tint to the rock.

The Plant is *Malva sylvestris* (Common Mallow).



597.

HETEROGASTER LATICEPS.

ORDER Hemiptera. FAM. Coreidæ.

Type of the Genus, Lygæus Urticæ *Fab.*

HETEROGASTER *Hahn.*—Lygæus *Fab., Wolff, Curt.*

Antennæ inserted on each side the clypeus, remote from the eyes, as long as the thorax, scarcely clavate, pubescent, pilose and 4-jointed, basal joint short, elongate-ovate, scarcely stouter than the following, which are nearly equal in length, 2nd rather the longest, and a little clavate, terminal joint conical at the apex (4).

Labrum shorter than the basal joint of the labium, long and slender, incrassated and pilose outside at the base (3).

Mandibles and *Maxillæ* long and setiform.

Rostrum nearly as long as the antennæ, pubescent and 4-jointed, 2 basal joints the longest, 1st the stoutest, 3rd rather the shortest (2).

Head *short subtrigonate, as broad often broader than the thorax, but narrowed at the base:* eyes *lateral, small, globose and very prominent, not touching the thorax:* ocelli 2, *remote, placed near the base of the head.* Thorax *elongate-trigonate, truncated before:* scutellum *much narrower than the thorax, elongate-trigonate.* Abdomen *subelliptic* (5), *covered by the* Elytra, *which are divided obliquely, the apical half membranous, with* 5 *longitudinal nervures.* Wings *very delicate and transparent.* Ovipositor *arising near the centre of the abdomen* (5 *o*). Legs *nearly equally stout, hinder a little the longest:* thighs *short:* tibiæ *simple, slightly clavate:* tarsi *shorter, triarticulate, basal joint elongated, 2nd the shortest, somewhat pear-shaped, 3rd a little longer:* claws *simply hooked:* pulvilli *distinct* (6, *a fore leg*).

LATICEPS *Curt.*—lineola *Curt. Guide, Gen.* 1121. 2.

Ochreous, inclining either to white or castaneous; sparingly clothed with shining, yellowish hairs and black punctures, leaving an interrupted light line down the head thorax and scutel: head very short and broad, with 2 black forked marks on the crown, 2 black suffused spots on the disc of the thorax, with 4 fuscous stripes at the base and 2 short remote elevated lines in front; scutel black at the base with a light dot on each side, the disc orange: elytra with the coriaceous portion more or less castaneous at the apex, with a pale oblique line down each, forming a dot at the apex, membranous portion pearly clouded with fuscous, dotted with brown, the nervures dark, with a brown stripe between the furcate nervures: antennæ and legs mottled and dotted with piceous, apical joint of antennæ and of tarsi fuscous; thighs and underside orange; a black spot on the breast and another at the base of the abdomen, and a line of black dots on each side.

In the Cabinets of Mr. Dale and the Author.

When the Guide was printed I considered this group to be the type of Lygæus, but as another insect is given to represent Lygæus by the Continental authors (vide fol. 481.) I have here adopted Hahn's generic name. There are 3 British species.

1. Thymi *Wolff, tab.* 15. *f.* 143.—conica *Gmel.?*

Blackish, coarsely punctured; head and thorax with a few whitish-ochreous spots, one on the anterior margin of the thorax, with the hinder angles and a spot on the base of the same colour: elytra nearly white, basal portion with 2 lines of black dots on the nervures with the edge of the costa and the oblique margin black, the apical portion with 4 or 5 clouded stripes: antennæ pale brown, basal joint dark: legs dull ochreous, thighs, excepting the tips, black, base and apex of tibiæ, as well as the apex of the basal joint of the tarsi, and the whole of the apical one blackish: length, ♂ $1\frac{1}{2}$, ♀ $2\frac{1}{4}$ lines.

I have found many pairs of this pretty species in May under stones in the Isle of Portland, and in June running quickly over the sand-hills near Lowestoft: I also took a specimen in the Isle of Arran. It is said by Wolff to be attached to *Thymus Serpyllum* (pl. 581).

2. laticeps *Curt. Brit. Ent. pl.* 597.

As Fabricius has a *Lygæus lineola* I have been obliged to change the name; and as the head is broader than in the other species, I have called it *laticeps*. I took a specimen under a stone at Black-gang Chine the 4th of August, and I believe Mr. Dale has met with it.

3. Urticæ *Fab.*

Greenish-black, rather coarsely punctured and hairy: labrum, a dot at the base of the head, margin of thorax and 3 short lines at the base dirty ochre; tip of scutellum and elytra of the same colour, the latter punctured with black and spotted with the same, except at the base, apical portion with a single black dot in the centre; margin of abdomen spotted with ochre: antennæ sometimes reddish-brown, basal joint black, trochanters and knees ochreous, tibiæ and tarsi of the same colour, spotted with black: length, ♂ $2\frac{1}{2}$, ♀ $3\frac{1}{4}$ lines.

Common in most places on nettles in the spring.

Specimens of the *Arbutus Unedo* (Common Strawberry-tree) I gathered in fruit on the rocks round the lakes of Killarney and Glengariff in July: the outline of a flower is given from a garden specimen.



LYGÆUS EQUESTRIS.

ORDER Hemiptera. FAM. Coreidæ.

Type of the Genus, Cimex Equestris *Linn.*

LYGÆUS *Fab., LaP.*—Corizus *Fall.*? *Curt.*—Coreus *Fall.*—Cimex *Linn.*

Antennæ inserted in a notch considerably before the eyes, half as long as the insect, scarcely clavate, pubescent and 6-jointed, basal joint stout and oblong, 2nd the longest clavate, 3rd and 5th minute cup-shaped, 4th and 6th shorter than the 2nd, the latter subfusiform (4).

Labrum longer than the basal joint of the labium, very slender and setaceous (3).

Mandibles and *Maxillæ* long and slender.

Labium bent under the breast, as long as the antennæ, composed of 4 joints of nearly equal length, slightly attenuated to the apex (2).

Head *trigonate immersed to the* Eyes *which are lateral small and prominent.* Ocelli 2, *remote, and close to the eyes* (1). Thorax *trapeziform:* scutellum *triangular, not large.* Abdomen *subelliptical, concave above, convex beneath.* Elytra *ample membranous and crossing at the apex when at rest, with several longitudinal but very few transverse nervures* (9). Wings *ample with strong nervures.* Legs *simple and very similar:* thighs *rather stouter than the* tibiæ, *which are a little incrassated at the apex:* tarsi *triarticulate, basal joint the longest, 2nd the shortest.* Claws *curved:* pulvilli *minute* (6, *a fore leg*).

EQUESTRIS *Linn.*—*Curt. Guide, Gen.* 1124ª. 2.

Scarlet: head and thorax black, excepting a lozenge-shaped scarlet spot on the crown of the former, and a band across the latter of the same colour, leaving a bilobed spot before and the base as well as the scutellum black. Elytra when at rest with 2 black spots close to the apex of the scutellum and an irregular fascia of the same colour across the middle; membrane brown, the edges whitish, with a white triangular spot at the middle, a large round one in the centre, and a triangular one on each side. Wings fuscous iridescent. Abdomen with 5 black spots on each lateral margin, 3 on each side the belly, and the apex antennæ and legs black also.

In the Cabinets of the British Museum and Mr. Johnson.

FOR the loan of this beautiful insect I am indebted to Mr. E. A. Johnson: it was taken amongst some cabbages in a garden at Camden Town last summer: those in the Museum I believe were from the neighbourhood of Bristol, and I understand that Mr. Hope has a British specimen. It is much attached to the *Asclepias Vincetoxicum*, which is not a native plant.

CORIZUS HYOSCYAMI.

Corizus *Fall.*? *Dall., Curt.*—Coreus *Fall.*—Lygæus *Fab.*—Cimex *Linn.*

Antennæ inserted in a notch considerably before the eyes, half the length of the insect, slightly clavate, pubescent, 6-jointed, basal joint short stout and somewhat obovate, 2nd and 4th twice as long, slender and slightly clavate, 6th a little longer stouter and subfusiform, the 3rd and 5th minute cup-shaped.

Labrum longer than the basal joint of the labium, very slender and setaceous.

Mandibles and *Maxillæ* long and slender.

Labium bent under the breast as long as the antennæ, 4-jointed, 1st 2nd and 4th joints of equal length, 3rd short and a little stouter than the adjoining ones.

Head *rhomboidal, narrowed behind:* eyes *lateral, small and prominent:* ocelli 2 *on the crown of the head, remote.* Thorax *trapeziform:* scutellum *trigonate.* Abdomen *ovate.* Elytra *ample, the membranous apex closely striated longitudinally and crossed when at rest.* Wings *similar to Lygæus and the* legs *also, but the posterior are visibly the longest.*

Hyoscyami *Linn. Faun. Suec.—Curt. Guide, Gen.* 1124. 1.—*Panz.* 79. 21.—*Sam. pl.* 5. *f.* 8.

Scarlet, pubescent and slightly rugose: antennæ black, tips of the 4th and apical joints ochreous: proboscis and eyes black as well as a space round them; anterior margin of thorax and 2 lunulate spots on the base black: scutellum black at the base and also a stripe on each side and a dot or 2 on the elytra, and a large spot on the centre of each; membrane bronzed brown; wings fuscous. Abdomen with a large spot above at the apex and 3 rows of spots beneath black: Legs of the same colour.

It is obvious that this genus differs from *Lygæus Equestris* in having a rhomboidal head, narrowed behind, and the membranes of the hemi-elytra are furrowed and not furnished with nervures. As they approach very near to each other, I have given the characters of both, and shall not further illustrate them in this work.

Lygæus Equestris and its congeners having been selected as the types of the Fabrician genus by continental authors, the name of my genus 1121 may be altered to Heterogaster.

Corizus Hyoscyami has been found by Capt. Blomer, Mr. Dale and Mr. Morris at Charmouth, Teignmouth, Dawlish warren and Ravenglass on Thistles and Restharrow, from May 20th to July 1st. I have taken it upon the Ononis (pl. 332), near Ventnor, the 1st of August, and on sand-hills, Braunton Burrows, beginning of September.

The Plant is *Ornithogalum nutans* (Drooping Star of Bethlehem), communicated by W. Wilson Saunders, Esq.



Edit. by J. Curtis Aug. 1. 1831.

ALYDUS CALCARATUS.

ORDER Hemiptera. FAM. Coreidæ.

Type of the Genus, Cimex calcaratus *Linn.*

ALYDUS *Fab., Curt.*—Coreus *Lat.*—Lygæus *Fab., Wolff.*—Cimex *Linn.*
Antennæ inserted before the eyes, remote, long and nearly filiform, geniculated and pubescent; 4-jointed, three first joints nearly of equal length, rather long slender and clavate, the basal joint a little the shortest, 4th joint nearly twice as long as the 3rd, and considerably thicker, cylindric, conical at the apex (4).
Labrum a little longer than the basal joint of the labium, attenuated to the apex, pilose and transversely striated (3).
Mandibles and *Maxillæ* setiform, inclosed in the
Labium which is as long as the head and thorax, tapering, slightly pubescent and 4-jointed, 1st and 2nd joints the longest, of equal length, 3rd the shortest, slender, 4th a little longer (2).
Head *elongate-trigonate, forming a distinct neck behind.* Eyes *lateral, globose and very prominent.* Ocelli 2, *placed at the back part of the crown of the head, rather remote and elevated.* Thorax *subconical, truncate before, base concave.* Scutellum *rather long and narrow.* Abdomen *long and linear, the sides elevated, above concave, beneath convex, the apex furnished with* 2 *obtuse appendages in the male.* Wings, superior *with the basal part obliquely coriaceous, the apical portion striated longitudinally with numerous nervures:* inferior wings *transparent and iridescent, with several nervures, those towards the costa strong.* Legs, *anterior short, posterior long.* Thighs, *posterior incrassated, furnished with* 5 *or* 6 *teeth beneath.* Tibiæ *slender.* Tarsi *short, triarticulate, basal joint long, 2nd shortest.* Claws *acute, with a membranous appendage at the base of each.* (6 *hind leg.*)

CALCARATUS *Linn. F. S. n.* 968.—*Wolff. t.* 14. *f.* 138.—*Curt. Guide, Gen.* 1125.
Dull black above, more or less brassy or cupreous beneath; clothed with soft hairs: antennæ with the base of the joints ferruginous, 2nd and 3rd sometimes nearly entirely so: ocelli ruby colour: head and thorax thickly punctured, the latter being the coarsest with a transverse impression before, in the centre of it a foveolet: superior wings pale fuscous ochre, mottled with brown and rust colour at the base; nervures of inferior wings brown: abdomen red above, excepting the base and apex which are shining black, the elevated margins brassy black with 4 yellowish spots on each: tibiæ, except at the base and apex, and the base of the 1st joint of tarsi ferruginous.

In the Author's and other Cabinets.

This curious insect, which is found in Sweden, France, and Germany, as well as in England, is by no means common with us.

It inhabits heathy places, and flies well in the heat of the sun. The first specimen I captured was flying over heath near Lyndhurst, the end of August, and another I took the beginning of September, near Niton in the Isle of Wight. I believe it has been observed in Coombe Wood, Surrey, as early as July, where the Broom abounds; and Mr. Dale informs me that Capt. Blomer has taken it in Devonshire.

Alydus is characterized by its thick and elongated body, (as represented by the outline figure, of the natural size at the bottom of the plate,) as well as by the spined posterior thighs. The *A. calcaratus* and the *A. lateralis* seem to be the only European species described. When I was in France last summer, I took this latter species at Nismes and Marseille, and as there is room I shall here give its characters.

A. lateralis *Ahrens, fasc.* 8. *tab.* 21.

Six lines long. Pale castaneous, clothed with short yellowish pubescence: antennæ black, basal joint with a red stripe on the inside, 2nd and 3rd red, except at the tips, 4th with the base and apex reddish: head very minutely and thickly punctured, blackish, with the margins and three longitudinal lines, castaneous: thorax elytra and scutellum, thickly and coarsely punctured, the first blackish before, with a yellow line on the sides, the costa of the elytra, and the apex of the scutellum of the same colour: abdomen red above, with the base, apex and 2 or 3 dots on each side black; the elevated margins blackish, with 5 or 6 large yellowish spots on each: underside and thighs mottled with black and castaneous, the hinder pair furnished with 4 or 5 teeth beneath: tibiæ and tarsi reddish ochre, the tips black.

This species I believe is only found in the South of Europe, and is attached to the Spanish Broom which abounds there.

The Plant is *Jasione montana* (Mountain Jasione).


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CHOROSOMA ARUNDINIS.

ORDER Hemiptera. FAM. Coreidæ *Leach.* Corisiæ *Lat.*

Type of the Genus, Chorosoma Arundinis *Curt.*

CHOROSOMA *Nob.*—Lygæus *Burrell.*

Antennæ inserted on each side the head, considerably before the eyes, as long as the fore legs, rather tapering and clothed with depressed hairs; 5-jointed, basal joints parallel, rather long and the most robust, 2nd the longest, 3rd nearly as long, 4th cup-shaped, 5th stouter, longer than the basal joint (4).

Labrum longer than the basal joint of the lip, slightly pubescent, nodiform at the base, slender and acuminated at the apex (3).

Mandibles and *Maxillæ*, setiform strong and enclosed in the *Labium* which is as long as the head and thorax and applied close to the breast when at rest (2), slightly pubescent and 4-jointed, basal joint the broadest, the same length as the 2nd; 3rd and 4th shorter, of equal length, the former indistinctly articulated, the latter the slenderest, sublanceolate (2*).

Male *smaller than the female.* Head *elongate-ovate, produced in front, the sides forming shafts for the antennæ.* Eyes *lateral globose and prominent.* Ocelli *two, seated at the back part of the head* (1). Thorax *as long as the head, subconic, truncate and depressed.* Scutellum *rather large and triangular, considerably concealed by the thorax.* Elytra *much shorter than the body, membranous at the apex with a few longitudinal nervures at the base, an areolet at the centre and a larger cell above.* Wings *short, very thin, the nervures obscure.* Abdomen *very long, as broad or broader than the thorax, sides slightly convex, back depressed, terminated by a subquadrate process with a conical lobe on each side in the male* (5), *and by a tube in the female.* Legs *simple slender, hinder pair long.* Tibiæ *as long as the thighs, thickened and pilose at the apex.* Tarsi *half the length of the tibiæ, triarticulate, basal joint long, very pilose beneath, 2nd and 3rd very short of equal length* (6). Claws *not large, bent and acute, with a membranous appendage at the base of each* (6 *d*).

ARUNDINIS *Nob.*

Pale and rather dull ochreous, punctured and slightly clothed with short rigid bristles. Antennæ and sides of head with a rosy tinge. Eyes and ocelli reddish. Clypeus with 4 abbreviated striæ. Thorax with a slightly elevated line down the centre and an impression near the posterior angles which are raised. Scutellum somewhat rosy with an elevated line down the centre and a black stripe on each side. Abdomen sparingly punctured, with 2 black abbreviated stripes down the back, attenuated towards the apex, sometimes united at the base, in others leaving a greenish stripe down the centre. Elytra with the costa thickened and ochreous, base of the same colour, the nervures rosy, with a black dot at the inferior basal angle. Wings with a black dot at the base. Posterior tibiæ black on the inside at the apex, the basal joint of the tarsus beneath, the terminal one and Claws black.

In the Cabinets of Mr. Paget, Mr. Davis, and the Author.

1. C. Arundinis. *Curt. Brit. Ent. pl.* 297.

As full generic descriptions are given on the other side, I shall proceed to transcribe the account transmitted to me with a fine series of this remarkable insect by C. J. Paget, Esq. of Great Yarmouth. "I find the Lygæus (Chorosoma) plentifully the latter end of August and beginning of September, at some sand-hills, about a hundred yards from the sea, which extend from a small village called Caistor, three miles north of this town, for many miles along the coast, and are called Marrams. They feed upon the *Arundo arenaria;* from the great abundance of which, together with *Elymus arenarius*, *Carex arenaria*, &c., all being vulgarly confounded under the common name of Marram-grass, the hills take their name. This Lygæus is not easily observed, resembling in colour the florets of the plant, which at this time of the year is precisely the same dry and autumnal tint as the insect. I have hitherto observed them only upon those plants which grow on the edge of the hills nearest the sea, where I have taken three, four, and five off one panicle."

At first sight this insect would be taken for one of that group of Mirides to which *Cimex dolabratus* Linn. belongs; but upon examining it more carefully, it will be found to possess characters so nearly similar to those of *L. micropterus*, that, for the present at least, they may be included in the same genus. I shall therefore subjoin its characters, &c.

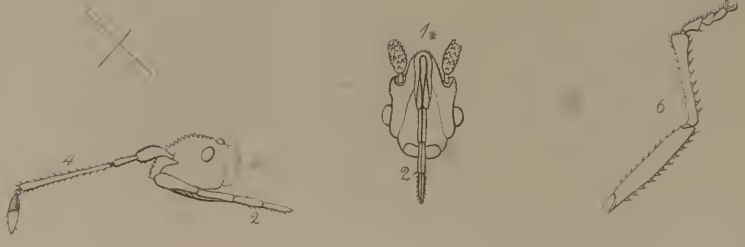
2. C. microptera *Nob.*—L. micropterus. *Burrell Ent. Trans. p.* 73. *pl.* 1.

Green and pilose; the elytra and abdomen smooth and naked. Antennæ and legs rosy, especially the former. Elytra not half the length of the body, the inferior nervures red. Wings rudimentary. Abdomen very much dilated in the female, the back rose-colour, with a broken black stripe down the centre.

First discovered in Norfolk by the late Rev. J. Burrell. It was found upon grass in chalky districts in August; I have since captured it near Norwich; Mr. Paget takes it near Yarmouth, and Mr. Samouelle at Coombe, Surrey, in June.

Arundo arenaria (Sea Reed, Marram, Sea-Mat-weed). This plant now forms the genus *Ammophila* Host, a name given by Mr. Kirby to a group of Hymenoptera in the Linnean Transactions for the year 1798.




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ATRACTUS LITERATUS.

ORDER Hemiptera. FAM. Coreidæ.

Type of the Genus, Atractus literatus.

ATRACTUS? *De Lap.*—Coreus *Fall., Ahr.*

Antennæ attached to two shoulders, considerably before the eyes, longer than the head and thorax, scabrous, capitate and 6-jointed?, basal joint short stout and subovate, 2nd and 3rd slender, the former shorter than the 1st, the latter equal in length to all the others, 4th minute, cup-shaped, the remainder forming an ovate conic mass as long as the 1st joint, divided by a suture at the middle but apparently not articulated, the apical portion pubescent (4).

Labrum very long and slender.

Labium shorter than the antennæ, extending in a groove beneath to the base of the intermediate coxæ, composed of 4 joints, two first of nearly equal length, 3rd and 4th shorter (2).

Head *convex above, subovate, the sides notched to receive the antennæ, the portion between them produced somewhat conically:* eyes *lateral, small, globose and prominent:* ocelli 2, *rather large, remote and placed at the back part of the crown* (1, *the head in profile,* 1* *underside of same*). Thorax *trapezate, not broader than the head before:* scutellum *not large, triangular and acute.* Abdomen *broader than the thorax, ovate, flat above, the margins dilated and a little reflexed.* Elytra *not covering the margin of the abdomen, the base coriaceous, with* 3 *longitudinal nervures furcate at the apex; the apical half membranous, with numerous ramified nervures:* wings *shorter, ovate and transparent, with a few longitudinal nervures and a small discoidal cell.* Legs *scabrous, rather short; posterior the longest:* tibiæ *slightly clavate and pectinated at the apex:* tarsi *rather short, triarticulate, basal joint the longest, especially in the hinder pair,* 2*nd obtrigonate, a little smaller than the* 3*rd which is obovate:* claws *and* pulvilli *small* (6, *a fore leg*).

LITERATUS *Curt. MSS.—Guide, Gen.* 1127[a].

In the Cabinets of Mr. Raddon and the Author.

FROM the characters given by M. De Laporte in his Essay on the Hemiptera, I believe our insect belongs to his Genus Atractus, and on comparing it with Coreus (pl. 174), the

different form of the antennæ will at once present a distinctive character. I see that M. De Laporte has placed his Coreidæ and Tingidæ next to each other, and there certainly is a considerable resemblance between Atractus and Aradus (pl. 230), yet I doubt if any real affinity exists, since their œconomy is different and the labium and tarsi vary most materially in their structure.

The only specimen I ever saw alive of the Genus Atractus, I took in the neighbourhood of Marseilles, and it probably is the *A. cinereus* of Laporte. The species figured appears to be undescribed, as it does not agree with the *C. nubilus* of Fallen and Ahrens: it was beaten off thistles and nettles by Mr. Raddon about the middle of last September, on Braunton Burrows in the North of Devon, and I am indebted to him for my example.

A. literatus *Curt. Brit. Ent. pl.* 500.

Dull ochreous, variegated with pale green, granulated or scabrous; antennæ with the tip of the 3rd joint as well as the 4th and 5th black, the apex of the latter or 6th joint whitish; thorax with 2 oblique green ridges parallel to the sides which appear serrated, metathorax and base of abdomen black, the edges of the segments and dots on the margin black; elytra with the nervures spotted with black and brown, the membranous portion transparent, a little clouded with brown, the nervures irregularly lettered with black, 4 anterior tibiæ with the base, apex and a ring round the middle dusky, tips of tarsi black.

The Plant is *Nepeta cataria* (Cat-Mint).


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COREUS SCAPHA.

ORDER Hemiptera. FAM. Coreidæ *Leach.* Corisiæ *Lat.*

Type of the Genus Cimex marginatus *Linn.*

COREUS *Fab., Wolff., Lat., Fall., Panz.*—Cimex *Linn., Geoff.*

Antennæ inserted at the anterior angles of the head, remote, longer than the thorax, 4-jointed, geniculated, basal joint robust, prismatic or cylindric, 2nd and 3rd rather slender, nearly equal in length, 4th shorter, thicker, conical pilose (fig. 4).

Labrum very long and slender towards the apex which is acuminated (3).

Mandibles and *Maxillæ* like setæ passing through the rostrum.

Rostrum inflected, as long as the thorax (2); distinctly 4-jointed, 1st and 2nd joints the longest, 3rd and 4th of nearly equal length (2*).

Head *subquadrate, spined in front, neck not apparent.* Eyes *lateral, small prominent.* Ocelli 2, *placed near the base of the head* (*f.* 1, *the head in profile*). Thorax *not broader than the head anteriorly, more than twice as broad at the base, sides angulated.* Scutellum *triangular not large.* Elytra *not covering the abdomen, posterior portion membranous.* Wings *shorter than the* Abdomen *which is depressed or concave, broader than the thorax, the sides dilated, very thin, and elevated; apex truncated in the males, emarginate having 2 or more lobes in the females* (5). Thighs *sometimes producing short spines and grooved beneath.* Tibiæ *simple, posterior rather the longest.* Tarsi 3-*jointed, basal joint the longest, 2nd small.* Claws *and* Pulvilli *small* (6, *a fore leg*).

SCAPHA *Fab. Ent. Syst. v.* 4. *p.* 127. *n.* 2.

Granulated and punctured, ochraceous, some inclining to castaneous others to cinereous. Head producing a spine in the centre, and a pale ochre one at each angle, the sides being margined with the same colour. Thorax with the lateral margins and an obscure line down the centre pale ochre, the posterior angles notched. Elytra spotted or clouded with castaneous, the margin at the base ochraceous, the membrane bronzed; sides of the abdomen reflexed, the edges, 5 spots down each side and 3 at the apex pale ochre. Antennæ with the basal joint robust and cylindric, granulated, rosy ochre, the internal side fuscous, 2nd joint rufous, 3rd and 4th black, the former rufous at the base. Legs pale, the thighs maculated with dark fuscous, the tibiæ spotted with black; tarsi subferruginous, terminal joint black. Beneath pale dirty ochre clouded with cinereous and spotted with black.

In the Author's Cabinet.

The broken antennæ composed of only four joints, will readily separate the genus *Coreus* from the *Pentatomidæ*, whilst the dilated abdomens with elevated margins will distinguish it from other groups of the *Coreidæ*.

The different species exhibit many variations of form in the antennæ, especially of the basal joint, in the process between them which in some is bifid, in the outline of the thorax and abdomen, as well as in the number of lobes or teeth at the apex.

We are now able to enumerate five perfectly distinct British species; the first of which only is common.

1. C. marginatus *Linn.*, *Wolff. tab. 3. f. 20.*

Found in May and September in gardens and hedges upon the dock. This insect has such rigid elytra and wings, that when flying they create a very harsh sound.

2. C. Scapha *Fab. Nob.*

Amongst other characters which this insect possesses that will distinguish it from the foregoing one, is the simple spine between the antennæ, which in that species is cleft. The end of last August I found the larva and two specimens at the base of the Cliff near Dover, and in September another in the Isle of Wight.

3. C. quadratus *Fab.*, *Wolff. t. 7. f. 67.*—venator *Don?* 11. 375.

Found in June and August in hedges.

4. C. scabricornis *Panz. 99. 21.*

5. C. denticulatus *Scop.*, *Wolff. t. 7. f. 68.*—hirticornis *Fab.*, *Panz. 92. 17.*

Inhabits sandy places in June.

The plant figured is *Crithmum maritimum* (Rock Samphire), and was obtained from the celebrated Shakspeare Cliff near Dover; it was also growing above the spot where the insects were found.



ÆLIA ACUMINATA.

ORDER Hemiptera. FAM. Pentatomidæ.

Type of the Genus, Cimex acuminatus *Linn.*

ÆLIA *Fab., Lat., De Lap., Hahn., Curt.*—Cimex *Linn.* &c.

Antennæ inserted under the head, on each side of the rostrum and somewhat before the eyes, as long as the head and thorax, slightly clavate, pubescent, and 5-jointed, 2 basal joints elongated, of equal length, 1st stouter than the 2nd which is very slender, 3rd twice as long, slender but clavate, 4th and 5th stouter, slightly compressed, a little longer than the 3rd, at least the latter joint (4).

Labrum very long and slender, linear and pointed (3).

Labium just reaching the hinder coxæ, 4-jointed, basal joint short and stoutish, 2nd twice as long, 3rd a little shorter than the 1st, 4th about the same length (2).

Head *large, conical or elongate-trigonate* (1, *the profile*), *the apex rounded and emarginate, with a winged groove beneath to receive the rostrum* (1* *the underside*) : eyes *small, globose and prominent, placed on each side of the head near to the base :* ocelli 2, *on the crown of the head close to the margin of the thorax, but remote from the eyes, minute.* Thorax *twice as broad as the head towards the base which is convex, somewhat trigonate-truncate, anterior angles prominent, posterior truncated :* antepectus *deeply grooved :* scutel *large, as long as the thorax but not broader than the head, elongate-trigonate, the apex rounded.* Abdomen *as broad as the base of the thorax, ovate.* Elytra *completely covering the body, horny, the apex membranous and transparent, with 2 very obscure nervures :* wings *as long and twice as broad* (9), *very delicate, with a horny costal nervure reaching to the middle, and several fine longitudinal nervures, 2 of them horny at the base also.* Legs *rather short, hinder the longest as well as the* thighs, *which are slightly curved in that pair :* tibiæ *simple with short spines at the apex :* tarsi *short, bristly beneath, triarticulate, basal joint the longest and stoutest, 2nd small, 3rd shorter than the 1st, ovate :* claws *and* pulvilli *simple.*

ACUMINATA *Linn.*—*Curt. Guide, Gen.* 1129. 1.

Ochreous with a dull greenish tinge, thickly and strongly punctured : antennæ ferruginous, except at the base : eyes black : a brownish line on each side of the head, and a wedge-shaped stripe down the centre punctured with black, continued down the thorax and gradually dilating, brown, excepting an ochreous ridge down the centre ; a brown stripe on each side not touching the lateral margins : scutel with an ochreous line down the middle and a short one on each side : elytra pale ochreous green, excepting the costa : back of abdomen bronzed-black, excepting the margins and an ochreous line at the apex : tarsi with the joints brown at the tips.

It is now fifteen years since I illustrated several genera belonging to this family, and called the attention of naturalists to the structure of the antennæ. At that time, Fallen's little work and Wolff's Icones with Panzer's figures were the principal aids we had to guide us through the various tribes of this intricate order. Since then M. De Laporte has given a valuable Systematic Classification of the Hemiptera, and Hahn has published a considerable portion of his Die Wanzenartigen Insecten. Dr. Burmeister has also an able memoir upon the classification of the Geocorisæ of Latreille in the Revue Entomologique, in which he rejects the antennæ as characters to be employed in the grouping of the Aspidotæ or Pentatomidæ of this work. I am very reluctant to give up the antennæ as generic characters in this order, having found them very useful if not infallible guides in the grouping of our British species: it would however be idle to discuss this subject generally, until the foreign tribes, which are very numerous, are fully investigated, as it is in them that Dr. Burmeister has found the antennæ of allied species to be very inconstant.

The following table will serve to group the British Pentatomidæ:

1. Scutellum not covering the abdomen.
 - Tarsi biarticulate ACANTHOSOMA pl. 28.
 - Tarsi triarticulate.
 - Legs smooth.
 - Head elongate trigonate ÆLIA 704
 - Head oblong PENTATOMA 20
 - Legs spiny CYDNUS..... 74

2. Scutellum nearly covering the abdomen TETYRA 685

and the characters of the subgenera will be found in the accompanying folio. I may add that Hahn has divided our Pentatomæ into *Tropicoris*, *Ialla*, *Eysarcoris*, and *Strachia*, which are distinguished by the antennæ.

The only species of *Ælia* inhabiting England is *acuminata*, which is not common. I have taken specimens on long grass at Caistor Marrams near Great Yarmouth in June, and in August and September in cornfields near Niton in the Isle of Wight. In May it has been found on Ferns and the Royal Moonwort, *Osmunda regalis*, the plant represented in the plate.



Publ. by J. Curtis, London, July 1 1824

28.

ACANTHOSOMA HÆMORRHOIDALIS.

G. A 8.35.43

ORDER Hemiptera. FAM. Pentatomidæ *Leach.*

Type of the Genus Cimex hæmorrhoidalis *Linn.*

ACANTHOSOMA *nob.* Pentatoma *Oliv., Lat., Leach.* Cimex *Linn., Fab.*
Antennæ exserted, inserted under the margin of the head, before the eyes, nearly filiform, or slightly clavate, longer than the head, articulated, 5-jointed; first joint longer than the third, which is the shortest. (4.)
Rostrum inflected, slightly hairy, 4-jointed, the second and third joints rather longer than the others. (2.)
Labrum very long, attenuated, transversely striated, received into a canal in the basal joint of the rostrum. (3. and 3. a.)
Mandibles and *Maxillæ* } like setæ passing through the rostrum.
Head *trigonate, immersed nearly or quite up to the eyes in the thorax.* Thorax *with the anterior margin much narrower than the posterior, angulated on the sides with a compressed bent spine beneath, extending nearly to the head.* (5. a.) Abdomen *depressed above, oblong-quadrate, attenuated towards the apex, with a keel down the centre beneath, terminated by a spine which lies over or by the side of that attached to the thorax.* (5. b.) Scutellum *large, not covering the wings or elytra.* Elytra *coriaceous, membranaceous at the apex, crossing each other horizontally.* Anterior tibiæ *scarcely notched internally.* Tarsi 2-*jointed.* (6. *a fore leg.*)

HÆMORRHOIDALIS *Linn. Syst. Nat.* 2. 720. 35. *Fab. Ent. Syst. t.* 4. *p.* 98. *n.* 76.
Yellowish green, irregularly punctured; the obtuse angles and a transverse band on the anterior part of the thorax orange; abdomen testaceous, variously marked with black and scarlet; tips of elytra and wings pale ferruginous. Antennæ testaceous at the base, black towards the apex. Legs and underside testaceous. Tibiæ and tarsi inclining to green.

In the Author's and other Cabinets.

THE Genus *Acanthosoma* was proposed in a former part of the work, in allusion to the spined keel beneath the abdomen, which is part of Fabricius's specific character; it is a singular conformation, and appears to protect the rostrum, which lies close by the side. The other peculiar marks of distinction (as

has been before observed in folio 20) are the great length of the first joint of the antennæ, and the tarsi having only 2 instead of 3 joints.

At present there are but 3 British species belonging to this Genus, *A. hæmorrhoidalis*, *liturata*, and *agathina*, all of which are described by Fabricius in his *Entomologia Systematica*.

A. hæmorrhoidalis (a male of which is figured of the natural size, the female is rather larger) is by no means a rare insect, being occasionally met with during June, in hedges, upon the white thorn and various other plants. The insects of this family have a very unpleasant scent, and in every state live upon juices obtained from small insects, especially caterpillars. The larva has no wings, the pupa has rudiments only; they generally resemble the imago in colour, and are very active.

A male plant of *Mercurialis perennis* (Dog's Mercury) is figured in the Plate.



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20.

PENTATOMA CÆRULEA.

ORDER Hemiptera. FAM. Pentatomidæ *Leach.*

Type of the Genus Cimex rufipes *Linn.*

PENTATOMA *Oliv., Lat.* Cimex *Linn., Fab., Wolff.*

Antennæ exserted, inserted under the margin of the head before the eyes, nearly filiform or slightly clavate, longer than the head, articulated, 5-jointed, the joints varying in length. (4 A. C.)

Rostrum inflected, distinctly 4-jointed, the second and third joints rather the longest, terminal joint hairy. (2.)

Labrum very long, attenuated, tranversely striated, received into a canal in the basal joint of the rostrum (3.); its natural situation is shown at 3. a.

Mandibles and *Maxillæ* } like setæ passing through the rostrum.

Head *trigonate, immersed nearly, or quite up to the eyes in the thorax.* Thorax *with the anterior margin much narrower than the posterior, sometimes produced into a spine on each side.* Abdomen *ovate, depressed, immarginate.* Scutellum *large, not covering the wings or elytra.* Elytra *coriaceous, membranaceous at apex, crossing each other horizontally.* Posterior Tibiæ *notched internally.* Tarsi *3-jointed, middle joint small.* (6. *a. fore-leg.*)

CÆRULEA *Linn. Syst. Nat.* 2. 722. 50. *Fab. Ent. Syst. t.* 4. *p.* 123. *n.* 166.

Cyaneous, sometimes tinged with violaceous or green, shining, punctured. Abdomen very minutely and regularly punctured; tips of elytra brunneous. Wings slightly fuscous, iridescent.

In the Author's and other Cabinets.

FEW Orders, perhaps, present a greater variety of outline, or more beautiful sculpture, than the European *Hemiptera*; the *Coleoptera* and *Lepidoptera* cannot exceed the brilliancy and powerful opposition of colours in many of the Chinese and South American species. With such attractions, therefore, it is not a little surprising, that in this country they should have been totally disregarded; and whilst, on the one hand, we have been assisted by Marsham's *Coleoptera*, and on the other by Haworth's *Lepidoptera Britannica*, we have no guide in this department, except in the rare and incomplete works of our Continental neighbours. During the progress of

the Entomological Transactions, I had hoped that this desideratum would have been supplied by my friend the Rev. J. Burrell; and although his valuable researches upon this subject have been so long withheld from the scientific world, I still hope he may be induced to supply this want by its publication.

The genus *Pentatoma* may be divided into three sections:—

A. Thorax produced into a spine on each side; third joint of antennæ the longest (fig. 4. A.), containing *P. bidens*, *rufipes*, *custos* and *lurida*.

B *. Thorax angulated, broader than abdomen; antennæ with the third joint the shortest. *P. Lynx*, *Baccarum* and *grisea*.

* * with the second and following joints of antennæ of equal length. *P. dissimilis* and *prasina*.

C. Thorax the same breadth at its base as the abdomen; antennæ with the basal joint oval, second the longest (f. C.) *P. Juniperina*, *melanocephala*, *perlata*, *festiva*, *oleracea* and *cærulea*.

In Mr. Vigors's cabinet is a species which belongs to this last division, received from Dr. Leach with the name of *P. picta*. It agrees tolerably well with the description in Fabricius, but I believe that Dr. L. was not satisfied of its authenticity as a British species.

Although *Cimex hæmorrhoidalis*, *liturata* and *agathina* have always heen included in the genus *Pentatoma*, I was very much inclined to think that they possessed good characters to establish a distinct genus; and upon a careful investigation, (exclusive of the antennæ having the first joint equal in length to any of the others, *vide* fig. B., and of a curious keel-shaped ridge arising near the extremity of the abdomen beneath, and passing between the legs nearly up to the head,) the tarsi consist of but two joints, which do not agree with the characters even of the *family* laid down by Mons. Latreille and Dr. Leach. I shall take the first opportunity of describing this group, which I propose calling Acanthosoma.

P. cærulea flies well in the sun-shine, and is to be met with about July in Coombe Wood, upon the leaves of trees in the heat of the day. I have taken it between Linton and Exmoor, upon heath, at the end of September. The natural size is shown by the smaller insect upon the plant *Erysimum cheiranthoides* (Treacle Worm-seed).


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74.

CYDNUS DUBIUS.

ORDER Hemiptera. FAM. Pentatomidæ *Leach.* Corisiæ *Lat.*

Type of the Genus Cimex bicolor *Linn.*

CYDNUS *Fab., Leach.* Cimex *Linn., Fab., Scop., Schrank, Wolff.* Pentatoma *Lat.*

Antennæ exserted, inserted under the margin of the head before the eyes, nearly filiform, or slightly clavate, longer than the head, 5-jointed, the 1st and sometimes the 2nd joints very short, the 3 following long, nearly of equal length, and more robust (fig. 4).

Rostrum inflected, distinctly 4-jointed, the 2nd and 3rd joints somewhat the longest, terminal joint slightly hairy (2).

Labrum very long, subulate, received into a canal in the basal joint of the rostrum (3).

Mandibles and *Maxillæ* } like setæ passing through the rostrum.

Head *obtuse, immersed quite up to the eyes in the thorax.* Clypeus *with a notch in the centre of the margin.* Thorax *narrowed anteriorly, with the angles rounded.* Abdomen *ovate, somewhat orbicular, depressed, margined.* Scutellum *large, not covering the wings or elytra.* Elytra *coriaceous, membranaceous at the apex, crossing each other horizontally.* Tibiæ *robust, spinulose, not notched.* Tarsi *3-jointed, middle joint minute* (6 *a fore leg*).

DUBIUS *Scopoli Entomologia Carniolica, p.* 121. *n.* 355. Albo-marginatus *Schrank Austr. n.* 531.

Dark blue, slightly inclining to green and purple, lateral margins of thorax and external margin of elytra pale straw-colour: margin of abdomen alternately black and straw-colour. Head, thorax and scutellum coarsely punctured; elytra more thickly and minutely punctured.

In the Cabinets of the British Museum and Mr. Stephens.

FABRICIUS established this group as a genus in his *Systema Rhyngotorum*, but Latreille has only made it a principal division of his genus *Pentatoma.* Dr. Leach by some accident has stated in his characters of the genus *Cydnus*, that the 2nd

joint of the antennæ is longer than the 3rd; an error into which he was probably led by his having examined *Pentatoma Oleracea*, which he gave as the type of the genus *Cydnus*, but which in reality belongs to the 3rd division (C.) of *Pentatoma* (vide folio 20). The relative proportions of the joints of the antennæ are most important characters here; and it so happens that the 2nd joint is never longer, but generally shorter than the 3rd; and it is not so in *Pentatoma*, as will be seen by referring to plate 20, except in division A, which comes nearest to *Cydnus* in this respect; and there it arises from the 3rd joint being the longest of all, which is not the case in *Cydnus:* the absence of the notch in the anterior tibiæ, and all the legs being spined, are other very essential characters.

There are 7 or 8 British species of this genus: viz. 1. *C. bicolor* L.; 2. *morio* L; 3. *marginatus?* 4. *biguttatus* L.; 5. *albo-marginatus* F.; 6. *dubius* Scop.; and a species in the cabinet of Mr. Stephens, larger than *C. morio*, but closely allied to it. The habits of these insects are like those of the kindred genera: several of the species are common. They are found upon plants in June, and frequently are to be seen in gravel-pits, into which they have accidentally fallen. Of the species figured I have seen but 2 specimens; one in the British Museum, from which the drawing was made, the other (which is of a duller colour) is in Mr. Stephens's cabinet.

Fabricius in his synonyms to *Cydnus morio*, includes figure 11 of the 57th table of Schæffer's *Icones*, which is a blue insect with a pale margin, whereas, to agree with his description it ought to be entirely black, with the exception of the rufous tarsi. There can be little doubt but this figure represents the *C. dubius* of Scopoli, and as such it is named by Panzer in his *Systematic Nomenclature* of Schæffer's *Icones*, page 75.

The plant figured is *Arabis turrita* (Tower Wall-cress), communicated by Professor Henslow, from the walls of Trinity and St. John's Colleges, Cambridge.




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685.

TETYRA FULIGINOSA.

ORDER Hemiptera. FAM. Pentatomidæ.

Type of the Genus, Cimex maurus *Linn.*

TETYRA *Fab., Leach, Curt.*—Scutellera *Lat.*—Cimex *Linn., Fab.* *Antennæ* as long as the head and thorax, inserted under but remote from the eyes and close to the anterior margin of the pectus; clavate and 5-jointed, basal joint elongate and clavate, 3 following scarcely so long, 2nd and 3rd slender, 4th and 5th stout and pubescent, the latter twice as long as the 4th (4). *Labrum* long slender and attenuated, transversely sulcated (3). *Labium* long horny hollow and 4-jointed, basal joint the stoutest, oblong, 2nd twice as long but slenderer, 3rd shorter than the 1st, 4th about the same length, a little attenuated, rounded and hairy at the apex (2*).

Rostrum *long, received into a groove beneath the head, and reaching to the hinder coxæ* (2). Head *large, trigonate-ovate, the sides sharp, immersed to the* Eyes, *which are small, lateral, prominent and subreniform:* ocelli 2, *placed near the base of the head, remote from the eyes* (1* *the head in profile*). Thorax *transverse, subelliptic, being truncated and narrowed before and behind, the sides forming* 2 *rounded angles:* scutellum *very large, as broad as the thorax, semiovate, convex, not covering the margins of the abdomen, but extending to the apex.* Elytra *and* wings *concealed beneath the scutel, the former as long as the body, with a small portion of the base coriaceous, the remainder dilated rounded and membranous, with numerous faint nervures at the apex* (9): *the latter rather shorter, but ample, with several nervures radiating from the base* (*). Abdomen *nearly orbicular, the margins thin.* Legs *rather short, hinder thighs the longest:* tibiæ *with minute spines, hinder the longest and spiny only inside:* tarsi *equal, short and triarticulate, pubescent beneath, basal joint clavate, 2nd very short somewhat obovate, 3rd as long as the 1st and stouter:* claws *simple,* pulvilli *small* (6, *a fore leg*).

FULIGINOSA *Linn.—Curt. Guide, Gen.* 1134. 4.

Piceous, thickly and minutely punctured, clothed with short coarse hairs; antennæ brown with the basal joint as long as the 5th, 3rd rather the shortest; head with 2 furrows down the front: thorax with a notch on each side towards the base, the hinder half ochreous spotted with brown, with a narrow ochreous line down the centre, an impression across the middle joining a deep channel down each side, disjointed at the centre, where there is a little fovea; scutel ochreous, with brown punctures and irregular marks, leaving a light line down the middle, which divides a triangular piceous spot at the base, and an orbicular dead black one towards the apex, on each side at the base is a black streak and a similar one at the centre; sides of the abdomen black spotted with ochre; coxæ, trochanters and tarsi dull ochreous, the latter inclining to brown.

THE disagreeable appellation which has been given to this tribe of insects, associated as it is with the House-bug, renders them by no means favourites with most of us; nevertheless they

are well deserving the attention of the naturalist; their œconomy is interesting, their structure curious, and their colours in many of the exotic species are not surpassed by the most splendid Butterflies.

In M. De Laporte's Essay, the few insects included by us under Tetyra are divided into many genera, as well as by Hahn, the essential characters of which I shall subjoin.

I. *Legs very spiny.* A. Antennæ inserted under the eyes.

* *2nd joint half as long as the 3rd.*

TETYRA *Fab.* THYREOCORIS *Schr.*

1. Scarabæoides *Linn.—Wolff. tab.* 1. *f.* 4.

End of May, Durdledoor, Mr. Dale; June, Barton Cliff.

** *2nd joint of antennæ longer than the third.*

ODONTOSCELIS *DeLap.* URSOCORIS *Hahn.*

3. fulvicornis *Faun. Franç.—Steph. Syst. Cat.* Does it belong to this section?

4. fuliginosa *Linn.—Curt. Brit. Ent. pl.* 685.

I swept a pair of this rare insect off short grass and Hedypnois on the sand-hills near Sandwich, the 9th August; Mr. Skrimshire took it once on the sand-hills at Burnham in Norfolk, and Mr. Butcher of Lowestoft gave me a specimen which he captured on the sands to the north of that town.

II. *Legs slightly spiny: antennæ with the 2nd and 3rd joints of equal length.*

BELLOCORIS *Hahn.* EURYGASTER *DeLap.*

5. picta *Fab.—Hahn. pl.* 45. *f.* 140.

Taken during Aug. off grass at the sides of fields near Dover, J. C. Isle of Portland and Blandford Race Course, Mr. Dale.

6. maura *Linn.—Hahn. pl.* 45. *f.* 139.—obliqua *Guide*, var.

Near Bristol, Mr. Millard; June, Monk's Wood, Mr. Babington; October, in a garden at Islington, Mr. A. Cooper.

III. *Legs almost smooth: antennæ inserted not quite under the eyes: 2nd joint a little shorter than the 3rd.*

PODOPS *DeLap.*

2. inuncta *Fab.—Panz.* 36. 24.

June, sandy places, Bexley; August, on grass, near Dover.

B. Antennæ inserted before the eyes; 2nd joint twice as long as the 3rd.

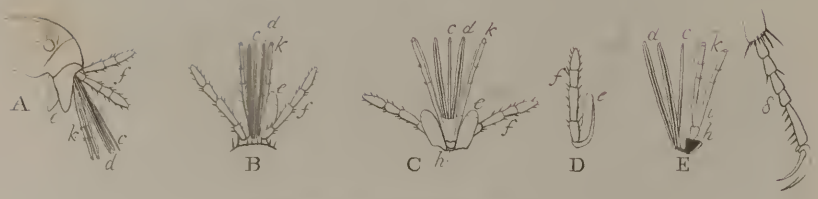
GRAPHOSOMA *DeLap.*—Scutellera *Hahn.*

7. lineata *Linn.*—nigrolineata *Fab.—Don.* 14. 473.

One, if not more specimens, were found several years since by Dr. Lindley, in a nursery-ground at Catton in Norfolk: as it is a common insect in France, it might have been imported with plants. It is attached to Elder-flowers, but I found it in abundance in June, near Toulouse, on *Heracleum laciniatum*.

The Plant is *Tamarix gallica*, French Tamarisk.




A
B
C
D
E

114.

PULEX TALPÆ.

Mole's Flea.

Order Siphonaptera *Lat.* Aphaniptera *Kirby.* Suctoria *Lat.* Aptera *Linn.*, *Lam.*, *Leach.*

Type of the Genus Pulex irritans *Linn.*

Pulex *Linn.*, *Fab.*, *Lat.*, &c.

Antennæ? inserted in two excavations behind the eyes, small, lamelliform, ciliated with spines, having one very short joint at the base. *Lat. Gen. Crust. v.* 4. *p.* 365.

Labrum none.

Mandibles long, slender, compressed, corneous transparent, with a rib down the centre (d).

Tongue as long as the mandibles, slender, filiform, transparent (c).

Maxillæ lateral, somewhat hollow, receiving the base of the palpi, coriaceous, corneous transparent and obtuse at the apex (e). *Palpi* robust, 4-jointed, somewhat pilose (f).

Mentum small coriaceous (C. E. h). *Labium* transparent, membranous (Ei), from each side of which arises a *Palpus* as long as the mandibles composed of 4 articulations, with a few hairs at the apex of each joint on the external side, and united internally by a continuous membranous dilated margin (k).

Head *small, compressed, rounded above, truncated before, ciliated more or less with bristles.* Eyes *small lateral, generally orbicular* (A). Thorax *composed of* 3 *segments, to each of which a pair of legs is attached.* Abdomen *larger in the female than male, formed of several rings united on the sides by a sinuated suture.* Legs, *posterior the longest, formed for leaping.* Coxæ *very large.* Thighs *short.* Tibiæ *very pilose.* Tarsi 5-*jointed.* Claws *long, slender acute, incurved at their base.* Pulvilli *none* (8).

Larvæ *vermiform.* Pupæ *incomplete, inclosed in a cocoon.*

Talpæ *Nobis.*

Shining ferruginous. Head nutant. Eyes pale, ovate. Clypeus ciliated with very strong black bristles concealing the mouth. Maxillary palpi with the basal joint the longest? Thorax small cylindric. Abdomen compressed, composed of several joints, the margins of which on the back and sides are ciliated with strong hairs; apex furnished with long bristles. Coxæ long, very much dilated at the base, notched and acuminated on the internal edge in the 4 posterior. Thighs short, compressed, narrowed towards their apex. Tibiæ and tarsi, especially the former, furnished with strong bristles.

In the Cabinet of the British Museum.

We must content ourselves with referring to Kirby and Spence's *Introduction to Entomology* and to Latreille's *Histoire Naturelle* (tome 14.) for the history and various amusing

anecdotes of the Flea, and for figures of the larva and pupa, to Shaw's *Naturalist's Miscellany* (plate 178), and shall proceed to explain the dissections at the bottom of our plate.

A. Represents the head of *Pulex Canis* in profile, with the trophi in a natural position.—B. The trophi seen from above.—C. The same from beneath, showing the lip or membrane connecting the base of the labial palpi.—D. One of the maxillæ, and a palpus attached to it.—E. The trophi in profile, with the maxillæ and their palpi removed to show the origin of the other organs.—8. The tarsus belonging to a fore leg.

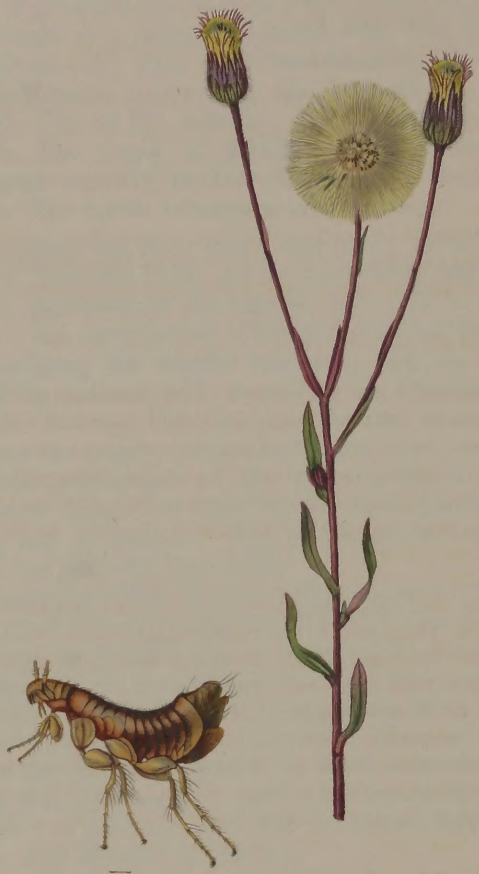
No insect has been more repeatedly examined, or oftener figured than the Flea; yet so incorrectly has it been represented, that most of the figures tend only to mislead the inquirer: the consequence of which (combined with the difficulty of examining the mouth) has been, that the opinions entertained by authors with regard to its affinities are very unsettled. Having had the good fortune some years since to discover the tongue (which had never been noticed or figured until the publication of the *Introduction to Entomology*), I have been induced to make further investigations, the result of which has produced a view of the subject different to that which has hitherto been held.

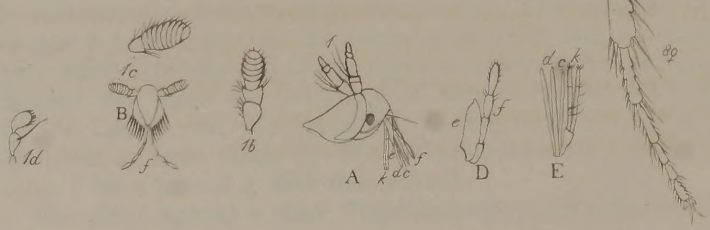
The cavity behind the eye, which appears to be partly closed by a small lobe that may be distinctly seen to rise and fall, I am disposed to believe is an organ of respiration rather than the analogue of the antenna as suspected by my friend Mons. Latreille; and the absence of spiraculæ down the sides of the abdomen strengthens my opinion. Little as we know of the uses of the antennæ beyond the sense of touch, it is impossible to say that the maxillary palpi may not perform in this order the office of antennæ, and that the orifice behind the eye may not be also adapted to hearing.

We believe *Siphonaptera* will be found connected with the last family of the *Homoptera*, and the first of the *Diptera*, the absence of wings as well as the structure of the rostrulum being analogous to the former; the habit of its larva, its economy, metamorphosis, and the trophi being very similar to the latter.

As there is no doubt but all our wild quadrupeds have a distinct species of *Pulex* belonging to each, we may expect to add many to those already discovered. Our species, the largest I have seen, like the animal it inhabits, has a minute eye, which is oblong and of a ferruginous colour: the specimen figured was taken the latter end of May in Battersea Fields by Dr. Leach, and Mr. Samouelle having no doubt but it is the same as some taken by Mr. Weatherhead off a Mole in June, I have named it after that animal.

The plant figured is *Aster Tripolium*, var. β. (Sea Starwort), flowers without ray.





Pub. by J. Curtis Aug. 1. 1832

417.

CERATOPHYLLUS ELONGATUS.

Yellow Bat's Flea.

Order Siphonaptera *Lat.*—Aphaniptera *Kirby.*—Suctoria *Lat.* Aptera *Linn.*, *Lam.*, *Leach.*

Type of the Genus, Pulex Hirundinis *Sam.*

Ceratophyllus *Curtis.*—Pulex *of Authors.*

Antennæ inserted on each side the crown of the head, concealed in a cavity behind the eyes when at rest, as long as the head, slightly attenuated, 4-jointed, basal joint conic-truncate furnished with a few long bristles at the apex, 2nd longer, 3rd subglobose, 4th small subovate (A. 1).

Labrum none.

Mandibles long slender, compressed and transparent (E. d).

Tongue as long as the mandibles, slender, linear and transparent (c).

Maxillæ (D. e) lateral, coriaceous, slightly acuminated at the apex and shorter than the *Palpi* which are attached to the base; they are long rather robust and 4-jointed, 2nd and 4th joints a little the longest, 3rd and 4th slightly pilose, the latter ovate at the apex (f).

Labium? somewhat cup-shaped, from the apex of which arise the *Palpi* which are as long as the mandibles, slender, producing a few hairs and 4-jointed, 2nd joint small, 3rd the longest, 4th furnished with a few bristles at the apex (k).

Head *small, compressed and rounded, sometimes ciliated with strong bristles.* Eyes *small lateral* (A). Thorax *composed of several segments.* Abdomen *elongated in the female, subclavate, compressed formed of several rings divided laterally.* Legs, *anterior short, posterior the longest, formed for leaping.* Coxæ *very large.* Thighs *short subovate compressed.* Tibiæ *rather short and pilose.* Tarsi *longer than the tibiæ, pilose and 5-jointed, basal joint the longest.* Claws *slender and acute, incurved at the base,* (8 ♀, *hind tibia and tarsus*).

Elongatus *Curtis's Guide, Gen.* 1136. 11.

Ochreous, variegated with ferruginous, shining, elongated and attenuated towards the head which is not ciliated: antennæ subclavate, pilose 8-jointed, 1st and 2nd joints large, the former obovate, the latter subquadrate, 3rd narrower, the remainder forming an ovate club composed of 4 rings and an apical joint (1 b). eyes undiscovered: maxillæ black; segments of the thorax and abdomen ciliated with short rigid black bristles; the abdomen very much dilated at the apex. Legs pale ochreous; tibiæ and tarsi sparingly clothed with long dark hairs; claws black.

In the Author's Cabinet.

It is now upwards of six years since I illustrated the genus Pulex (vol. 3. 114.), and by repeated examinations made by my friends and myself, I find it necessary to divide the Pulices into two genera. I am the more desirous to publish this genus that the structure of the antennæ may be made known to the student, and consequently a better idea given him of the affinities of this remarkable little Order.

It is necessary to observe, that the *P. Talpæ* figured in pl. 114. does not belong to the genus Pulex but to Ceratophyllus, and my friend Mr. Haliday having discovered the antennæ of *Pulex Canis*, I have copied it from his drawing into the present plate (fig. 1. d.). As this discovery confirms the opinion of Mons. Latreille, the 4th paragraph on the second page of the 114th folio should be erased. Mr. Haliday in his letter to me observes, "In investigating the analogy between *Cordyla* and *Mycetophila nigra* on the one hand and *Pulex* on the other, I was led to the discovery of the antennæ of the latter genus; they are situate nearly as in *Ceratophyllus*, but entirely covered by the frontal plate, are shorter than in it, very flat and 2-jointed; the first joint has a bristle near its internal apex, and the other is crowned with spines such as distinguish the incisures of the trunk."

I believe the following British species belong to my genus Ceratophyllus.

1. C. Talpæ *Curt. Brit. Ent. pl.* 114. ♂.

Antennæ elongate-ovate, pilose 10-jointed, basal joint ovate-truncate, the remainder forming rings, (B. 1 c. front view of head with the palpi and antennæ, as well as one of the latter detached and more magnified).

Mr. C. A. Johnson gave me a specimen found on a Rat, which appears to be the same as that from the Mole, and from this animal I have a smaller species which seems to be very different from *C. Talpæ*.

2. C. Muris *Curt.*—Off the Mouse.
3. C. Melis *Lea.*—Off the Badger.
4. C. Sciurorum *Olf.*—Off the Squirrel.
5. C. Erinacei *Lea.*—Off the Hedgehog.
6. C. Leporis *Lea.*—From the Hare.
7. C. Columbæ *Ste.*—Off Pigeons.
8. C. bifasciatus *Curt.*—Off a Sand-martin.
9. C. Hirundinis *Sam.*—Fig. A. head in profile, with the antennæ erect and the trophi separated. D. a maxilla and palpus. E. the mandibles, tongue, labium and palpi. 8 ♀, the hind tibia and tarsus. —On Swallows in June.
10. C. Sturni *Dale.—Curt.*—Middle of May, on young Starlings.
11. C. elongatus *Curt. Brit. Ent. pl.* 417. ♀. *fig.* 1. b, an antenna.—Off the Yellow Bat.
12. C. Vespertilionis *Sam.*—Found on Bats by Mr. Gray.
13. C. fasciatus *Lat. H. N.* 14. 412.—Off the Rat.
14. C. trifasciatus *Curt.*—Off a Bat, the smallest species I have seen.

The Plant is *Erigeron acre* (Blue Fleabane).